

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: TRWONZ, DVC Examiner #: 69332 Date: 10/31/81
 Art Unit: 171 Phone Number 308-2437 Serial Number: 09/622,592
 Mail Box and Bldg/Room Location: 3/4D29 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched.

Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

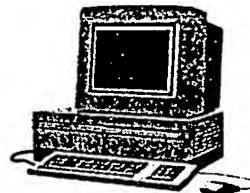
Structure (I) of claim 1 with one substituted episode
 of structure (II) or (III) or IV. Thanks

STAFF USE ONLY		Type of Search	Vendors and cost where applicable
Searcher:	<u>K. Fuller</u>	NA Sequence (#)	STN: <input checked="" type="checkbox"/>
Searcher Phone #:		AA Sequence (#)	Dialog
Searcher Location:		Structure (#)	Questel/Orbit
Date Searcher Picked Up:	<u>11/15/01</u>	Bibliographic	Dr. Link
Date Completed:	<u>11/15/01</u>	Litigation	Lexis/Nexis
Searcher Prep & Review Time:	<u>20</u>	Fulltext	Sequence Systems
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Online Time:	<u>58</u>	Other	Other (specify)

EIC1700

Search Results

Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact *the EIC searcher* who conducted the search or *contact*:

Kathleen Fuller, Team Leader, 308-4290, CP3/4 3D62

Voluntary Results Feedback Form

➤ *I am an examiner in Workgroup:* *Example:*

➤ *Relevant prior art found, search results used as follows:*

- 102 rejection
- 103 rejection
- Cited as being of interest.
- Helped examiner better understand the invention.
- Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- Foreign Patent(s)
- Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- Results verified the lack of relevant prior art (helped determine patentability).
- Search results were not useful in determining patentability or understanding the invention.

Other Comments:

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DICTIONARY FILE UPDATES: 4 NOV 2001 HIGHEST RN 366781-46-6

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Please note that search-term pricing does apply when
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Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

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FILE COVERS 1947 - 5 Nov 2001 VOL 135 ISS 20
FILE LAST UPDATED: 4 Nov 2001 (20011104/ED)

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=> D QUE
L4 274951 SEA FILE=REGISTRY ABB=ON LNTH/PG
L5 5484 SEA FILE=REGISTRY ABB=ON ((LNTH/PG OR Y OR SC)(L)C(L)H(L)O)/EL
S(L)4-6/ELC.SUB
L6 70044 SEA FILE=REGISTRY ABB=ON (C(L)H(L)O)/ELS(L)L4
L7 62673 SEA FILE=REGISTRY ABB=ON L6(L)4-6/ELC.SUB
L8 21267 SEA FILE=HCAPLUS ABB=ON L7 OR L5
L9 2085 SEA FILE=HCAPLUS ABB=ON L8(L)CAT/RL
L10 159 SEA FILE=HCAPLUS ABB=ON L9 AND RING?(3A)?OPEN?
L11 28 SEA FILE=HCAPLUS ABB=ON L10 AND ?EPOX?

L12 20 SEA FILE=HCAPLUS ABB=ON L10 AND ?OXIRAN?
 L13 9 SEA FILE=HCAPLUS ABB=ON L10 AND ETHYLENE OXIDE
 L14 40 SEA FILE=HCAPLUS ABB=ON (L11 OR L12 OR L13)
 L15 2 SEA FILE=HCAPLUS ABB=ON L14 AND ?POLYETHER?
 L16 10 SEA FILE=HCAPLUS ABB=ON L10 AND ?POLYETHER?
 L17 24 SEA FILE=HCAPLUS ABB=ON (L14 OR L16) AND (POLYMER? OR
 PLASTIC?) /SC, SX
 L18 24 SEA FILE=HCAPLUS ABB=ON L15 OR L17
 L19 5 SEA FILE=HCAPLUS ABB=ON L10 AND ALKYLENE OXIDE#
 L20 5 SEA FILE=HCAPLUS ABB=ON L19 AND (POLYMER? OR PLASTIC?) /SC, SX
 L21 26 SEA FILE=HCAPLUS ABB=ON L18 OR L20
 L23 158577 SEA FILE=REGISTRY ABB=ON 1.30.1/RID - *ring identifier for* *Q*
 L24 208477 SEA FILE=HCAPLUS ABB=ON L23
 L25 52 SEA FILE=HCAPLUS ABB=ON L10 AND L24
 L26 4 SEA FILE=HCAPLUS ABB=ON L25 AND ?POLYETHER?
 L27 29 SEA FILE=HCAPLUS ABB=ON L25 AND (POLYMER? OR PLASTIC?) /SC, SX
 L28 38 SEA FILE=HCAPLUS ABB=ON L21 OR L26 OR L27

=> D L28 1-38 ALL HITSTR

L28 ANSWER 1 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 2001:124217 HCAPLUS

DN 134:178969

TI **Ring-opening** polymerization of substituted
epoxides using rare earth complexes and reaching high
 polymerization degree

IN Kawamukai, Hiroshi; Miyanaga, Seiichi; Oda, Takashi

PA Kao Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

applicant

DT Patent

LA Japanese

IC ICM C08G065-12

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 29, 37, 78

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001048974	A2	20010220	JP 1999-229634	19990816
AB	Substituted epoxides excluding propylene oxide and epihalohydrins are polymd. in the presence of rare earth complexes and organometallic reductants therefor. Thus, a poly(cetyl glycidyl ether) with Mn 100,000 was obtained by use of acetylacetonato(tetraphenylporphyrinato)samarium and Me aluminoxane as a catalyst system.				
ST	samarium complex catalyzed substituted epoxide polymn; methylaluminoxane reducible rare earth complex catalyst; cetyl glycidyl ether high polymn degree				
IT	Aluminoxanes RL: CAT (Catalyst use); USES (Uses) (Me; ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)				
IT	Polymerization catalysts (ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)				
IT	Organometallic compounds Rare earth complexes RL: CAT (Catalyst use); USES (Uses)				

(ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)

IT Polyoxalkylenes, preparation

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)

IT 12611-57-3 26846-33-3 61301-65-3,

(Acetylacetonato)(tetraphenylporphyrinato)samarium 130725-34-7,
Bromo(tetraphenylporphyrinato)cerium

RL: CAT (Catalyst use); USES (Uses)

(ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)

IT 31740-69-9P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)

IT 12611-57-3 26846-33-3 61301-65-3,

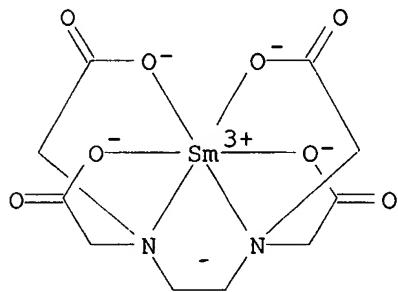
(Acetylacetonato)(tetraphenylporphyrinato)samarium

RL: CAT (Catalyst use); USES (Uses)

(ring-opening polymn. of substituted epoxides using rare earth complexes and reaching high polymn. degree)

RN 12611-57-3 HCPLUS

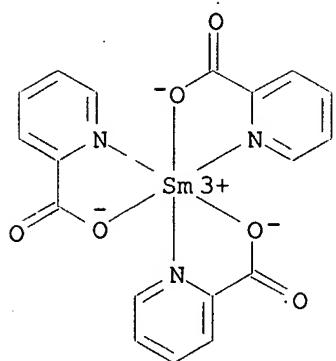
CN Samarate(1-), [[N,N'-1,2-ethanediylbis[N-[(carboxy-.kappa.O)methyl]glycinato-.kappa.N,.kappa.O]](4-)]-, hydrogen, (OC-6-21)-(9CI) (CA INDEX NAME)



● H⁺

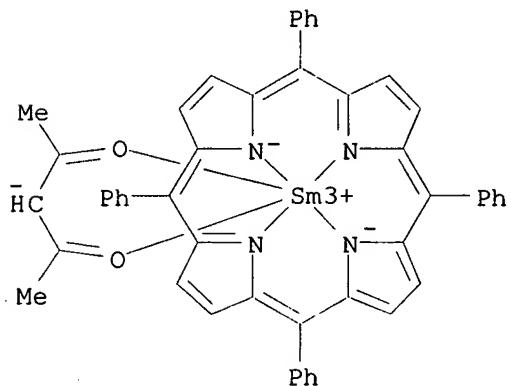
RN 26846-33-3 HCPLUS

CN Samarium, tris(2-pyridinecarboxylato-.kappa.N1,.kappa.O2)- (9CI) (CA INDEX NAME)



RN 61301-65-3 HCAPLUS

CN Samarium, (2,4-pantanediionato-.kappa.O, .kappa.O') [5,10,15,20-tetraphenyl-21H,23H-porphinato(2-)-.kappa.N21, .kappa.N22, .kappa.N23, .kappa.N24]- (9CI)
(CA INDEX NAME)



IT 31740-69-9P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)
(ring-opening polymn. of substituted
epoxides using rare earth complexes and reaching high polymn.
degree)

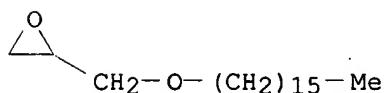
RN 31740-69-9 HCAPLUS

CN Oxirane, [(hexadecyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 15965-99-8

CMF C19 H38 02



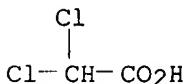
L28 ANSWER 2 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:111769 HCAPLUS

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

DN 134:131940
 TI Process for preparing high-molecular-weight aliphatic polycarbonates
 IN Zhao, Xiaojiang; Liu, Binyuan; Wang, Xianhong; Zhao, Daqing; Wang, Fusong
 PA Changchun Inst. of Applied Chemistry, Chinese Academy of Sciences, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 IC ICM C08G064-02
 ICS C08G064-34
 CC 35-3 (Chemistry of Synthetic High Polymers)
 FAN.CNT 1

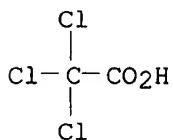
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1257885	A	20000628	CN 1998-125655	19981224
AB	Epoxides react with CO ₂ in solns. contg. rare earth compds. and organometallic compds. to prep. polycarbonates. Thus, propylene oxide and CO ₂ were polymd. in a soln. contg. Y trichloroacetate-ZnEt ₂ -glycerol to prep. a polycarbonate.				
ST	polycarbonate carbon dioxide epoxide copolymer; catalyst polymn yttrium zinc glycerol				
IT	Rare earth compounds RL: CAT (Catalyst use); USES (Uses) (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	Polycarbonates, preparation RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process) (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	Ethers, uses RL: NUU (Nonbiological use, unclassified); USES (Uses) (cyclic; catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	Alcohols, uses RL: CAT (Catalyst use); USES (Uses) (polyhydric; catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	Epoxides RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses) (polymers with carbon dioxide; catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	Polymerization catalysts (ring-opening; catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	56-81-5, Glycerol, uses 57-55-6, 1,2-Propanediol, uses 107-21-1, Ethylene glycol, uses 112-27-6, Triethylene glycol 112-60-7, Tetraethylene glycol 504-63-2, 1,3-Propanediol 557-20-0, Diethylzinc 20101-72-8, Yttrium dichloroacetate 20101-73-9, Yttrium trichloroacetate 29770-44-3, Neodymium trifluoroacetate				
IT	RL: CAT (Catalyst use); USES (Uses) (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and epoxides)				
IT	25511-85-7P, Carbon dioxide-propylene oxide copolymer 25608-11-1P, Carbon dioxide-ethylene oxide copolymer				

RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
 (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and **epoxides**)
 IT 20101-72-8, Yttrium dichloroacetate 20101-73-9, Yttrium trichloroacetate 29770-44-3, Neodymium trifluoroacetate
 RL: **CAT** (Catalyst use); USES (Uses)
 (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and **epoxides**)
 RN 20101-72-8 HCPLUS
 CN Acetic acid, dichloro-, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



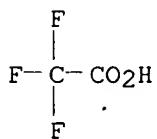
1/3 Y(III)

RN 20101-73-9 HCPLUS
 CN Acetic acid, trichloro-, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



1/3 Y(III)

RN 29770-44-3 HCPLUS
 CN Acetic acid, trifluoro-, neodymium(3+) salt (8CI, 9CI) (CA INDEX NAME)

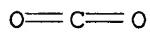


1/3 Nd(III)

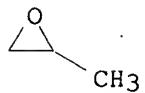
IT 25511-85-7P, Carbon dioxide-propylene oxide copolymer
 25608-11-1P, Carbon dioxide-ethylene oxide copolymer
 RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
 (catalysts contg. rare earth compds. and organometallic compds. for polymn. of carbon dioxide and **epoxides**)
 RN 25511-85-7 HCPLUS

CN Oxirane, methyl-, polymer with carbon dioxide (9CI) (CA INDEX NAME)

CM 1

CRN 124-38-9
CMF C O2

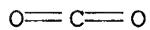
CM 2

CRN 75-56-9
CMF C3 H6 O

RN 25608-11-1 HCPLUS

CN Oxirane, polymer with carbon dioxide (9CI) (CA INDEX NAME)

CM 1

CRN 124-38-9
CMF C O2

CM 2

CRN 75-21-8
CMF C2 H4 OL28 ANSWER 3 OF 38 HCPLUS COPYRIGHT 2001 ACS
AN 2000:719632 HCPLUS

DN 134:56988

TI Ring-opening polymerization of styrene oxide with rare earth coordination catalysts

AU Ge, L.; Huang, Q.; Zhang, Y.; Shen, Z.

CS Department of Polymer Science and Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China

SO Eur. Polym. J. (2000), 36(12), 2699-2705
CODEN: EUPJAG; ISSN: 0014-3057

PB Elsevier Science Ltd.

DT Journal

LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB Ring-opening polymn. of styrene oxide was successfully carried out by using new rare earth catalytic systems for the first time. It was found that trinray rare earth coordination catalysts composed of neodymium 2-ethylhexyl phosphonate or calix[6]arene-neodymium, triisobutylaluminum and 2-ethylhexyl phosphonate are effective catalysts for the ring-opening polymn. of styrene oxide. The dependence of polymn. on molar ratio of catalyst components (Al/Nd), solvent, polymn. temp. and time has been investigated. The polymers were characterized by IR, $^1\text{H-NMR}$, $^{13}\text{C-NMR}$ and GPC.

ST ring opening polymn styrene oxide; rare earth catalyst polymn styrene oxide; neodymium polymn catalyst styrene oxide; aluminum triisobutyl polymn catalyst styrene oxide; phosphonate polymn catalyst styrene oxide

IT Solvent effect
(on ring-opening polymn. of styrene oxide with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)

IT Polyethers, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(ring-opening polymn. of styrene oxide with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)

IT Polymerization catalysts
(ring-opening; ring-opening polymn. of styrene oxide with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)

IT 100-99-2, Triisobutylaluminum, uses 298-07-7, P204 7440-00-8D, Neodymium, calix[6]arene compds. 38326-04-4, Neodymium tris[(bis(2-ethylhexyl) phosphate] 96107-95-8D, Calix[6]arene, neodymium compds.
RL: CAT (Catalyst use); USES (Uses)
(catalysts; ring-opening polymn. of styrene oxide with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)

IT 25189-69-9P, Poly(styrene oxide) 101062-46-8P,
Poly[oxy(phenyl-1,2-ethanediyl)]
RL: SPN (Synthetic preparation); PREP (Preparation)
(ring-opening polymn. of styrene oxide with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)

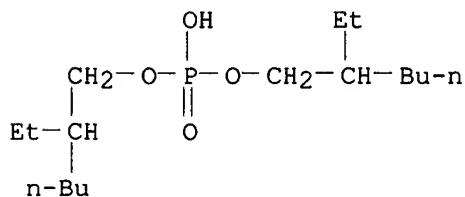
RE.CNT 17

RE

- (1) Allen, G; Polymer 1969, V8, P385
- (2) Allen, G; Polymer Lond 1967, V8, P391 HCPLUS
- (3) Colclough, R; J Polym Sci 1959, V34, P171 HCPLUS
- (4) Heatley, F; Eur Polym J 1991, V27(6), P471 HCPLUS
- (5) Jedlinski, Z; Makromol Chem 1982, V183, P587 HCPLUS
- (6) Kasperczyk, J; Makromol Chem 1986, V187, P2215 HCPLUS
- (7) Kern, R; Makromol Chem 1965, V81, P261 HCPLUS
- (8) Ouyang, J; Collection of synthetic rubber catalyzed by rare earth catalysts 1980, P113
- (9) Rabagliati, F; Eur Polym J 1987, V23(1), P63 HCPLUS
- (10) Sepulchre, M; Makromol Chem 1988, V189, P2485 HCPLUS
- (11) Seung, S; J Polym Sci Polym Lett Ed 1980, V18, P89 HCPLUS
- (12) Shen, Z; J Zhejiang University 1987, V21(5), P114 HCPLUS
- (13) Tsuruta, T; Makromol Chem 1968, V111, P236 HCPLUS
- (14) Wu, J; J Polym Sci Polym Chem Ed 1990, V28, P1995 HCPLUS
- (15) Wu, J; Polym J 1990, V22, P283 HCPLUS
- (16) Wu, J; Polym J 1990, V22, P326 HCPLUS
- (17) Zhang, Y; Inorganica Chimica 1989, V155, P263 HCPLUS

IT 38326-04-4, Neodymium tris[(bis(2-ethylhexyl) phosphate]
RL: CAT (Catalyst use); USES (Uses)
(catalysts; ring-opening polymn. of styrene oxide)

with neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)
 RN 38326-04-4 HCPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



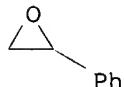
●1/3 Nd(III)

IT 25189-69-9P, Poly(styrene oxide)
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (ring-opening polymn. of styrene oxide with
 neodymium-triisobutylaluminum-ethylhexyl phosphonate catalyst)
 RN 25189-69-9 HCPLUS
 CN Oxirane, phenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 96-09-3

CMF C8 H8 O



L28 ANSWER 4 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 2000:419451 HCPLUS
 DN 133:150965
 TI Anionic ring opening polymerization of oxygenated heterocycles with supported zirconium and rare earths alkoxides as initiators in protic conditions. Towards a catalytic heterogeneous process
 AU Miola-Delaite, Christelle; Colomb, Erwan; Pollet, Eric; Hamaide, Thierry
 CS Laboratoire de Chimie et Procedes de Polymerisation, C.N.R.S., ESCPE Lyon,
 Villeurbanne, 69616, Fr.
 SO Macromol. Symp. (2000), 153(Recent Advances in Ring Opening (Metathesis) Polymerization), 275-286
 CODEN: MSYMEC; ISSN: 1022-1360
 PB Wiley-VCH Verlag GmbH
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB The polymn. of epsilon-caprolactone and 2,2-dimethyltrimethylene carbonate (DTC) initiated by various Lewis acid metal alkoxides (Zr and rare earths) in the presence of alc. mols. has been investigated. Adding alc. induces a fast transfer reaction which allows to synthesize functionalized oligomers. The polymn. can be described according to a living process with fast transfer reaction, so that the mol. wt. is easily

controlled. In the case of lactones, rare earths alkoxides allow to get higher activities so that functionalized oligomers can be obtained within less than 5 min. Some transesterification are noticed if the polymer chains are left in contact with the active centers after polymn. These active centers have been grafted onto porous supports. These solids act as actual chem. ligands able to modify drastically the kinetic behavior, particularly with regard to the controlled polymn. of ethylene and propylene oxides. Supported Y and Nd alkoxides are the best active centers for the polymn. of DTC. Finally, the heterogeneous character has been used to develop a new continuous polymn. process by using a plug flow reactor filled with grafted silica. The conversion as well as the d.p. depend either on the height of the bed or on the flow rate.

ST anionic **ring opening** polymn oxygenated heterocycle;
 caprolactone anionic **ring opening** polymn;
 dimethyltrimethylene carbonate anionic **ring opening** polymn; **ethylene oxide** anionic **ring opening** polymn; kinetics anionic **ring opening** polymn; propylene oxide anionic **ring opening** polymn; catalyst **ring opening** polymn oxygenated heterocycle; zirconium alkoxide catalyst polymn oxygenated heterocycle; rare earth catalyst polymn oxygenated heterocycle

IT Polymerization catalysts
 (anionic, **ring-opening**; anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT Polymerization kinetics
 (anionic, **ring-opening**; kinetics of anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT Chain transfer agents
 (benzyl alc.; anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT Y zeolites
 RL: CAT (Catalyst use); USES (Uses)
 (supports; anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT 2172-12-5, Yttrium triisopropoxide 3504-40-3, Samarium triisopropoxide 19236-15-8, Neodymium triisopropoxide
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts; anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT 100-51-6, Benzyl alcohol, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (chain-transfer agents; anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT 75-21-8, **Ethylene oxide**, reactions
 75-56-9, Propylene oxide, reactions 502-44-3,
 .epsilon.-Caprolactone 3592-12-9, 2,2-Dimethyltrimethylene carbonate
 RL: PRP (Properties); RCT (Reactant)
 (kinetics of anionic **ring opening** polymn. of oxygenated heterocycles with supported zirconium and rare earths alkoxide catalyst in presence of benzyl alc.)

IT 1314-13-2, Zinc oxide, uses 1344-28-1, Alumina, uses 7631-86-9,
 Silica, uses
 RL: CAT (Catalyst use); USES (Uses)

(supports; anionic ring opening polymn. of
oxygenated heterocycles with supported zirconium and rare earths
alkoxide catalyst in presence of benzyl alc.)

RE.CNT 28

RE

- (1) Aida, T; Acc Chem Res 1996, V29, P39 HCPLUS
- (2) Aida, T; Macromolecules 1988, V21, P195
- (3) Baran, J; Macromol Symp 1997, V123, P93 HCPLUS
- (4) Colomb, E; Macromol Chem Phys To be published
- (5) Endo, M; Macromolecules 1987, V20, P2982 HCPLUS
- (6) Hamaide, T; Makromol Chem Macromol Symp 1994, V88, P191 HCPLUS
- (7) Hamaide, T; Polym Bull 1996, V37, P313 HCPLUS
- (8) Hamitou, A; J Pol Sci 1977, V15, P865 HCPLUS
- (9) Hofman, A; Makromol Chem Rapid Communic 1987, V8, P387 HCPLUS
- (10) Hovestadt, W; Polymer 1992, V33, P1941 HCPLUS
- (11) Jacobs, C; Macromolecules 1991, V27, P3027
- (12) Jacquier, V; Entropie 1998, V212/213, P87
- (13) Jacquier, V; Macromol Chem Phys 1996, V197, P1311 HCPLUS
- (14) Kricheldorf, H; Macromolecules 1988, V21, P286 HCPLUS
- (15) Le Borgne, A; Makromol Chem Rapid Communic 1994, V15, P955 HCPLUS
- (16) Letourneau, J; Makromol Chem Phys 1996, V197, P2577 HCPLUS
- (17) McLain, S; Polym Prep (Am Chem Soc Div Polym Chem) 1992, V33, P174 HCPLUS
- (18) Miola, C; Polymer 1997, V38, P5667 HCPLUS
- (19) Ouhadi, T; Macromolecules 1976, V9, P927 HCPLUS
- (20) Ouhadi, T; Makromol Chem Suppl 1975, V1, P191
- (21) Shen, Y; J Polym Sci Polym Chem 1997, V35, P1339 HCPLUS
- (22) Sosnowski, S; Makromol Chem 1991, V47, P127
- (23) Stevels, M; Macromol Chem Phys 1995, V196, P1153
- (24) Stevels, W; Macromolecules 1996, V29, P6132 HCPLUS
- (25) Vandenberg, E; J Chem Soc 1961, V83, P3538 HCPLUS
- (26) Vandenberg, E; J Polym Sci 1960, V47, P486 HCPLUS
- (27) Yamashita, M; Macromolecules 1996, V29, P1798 HCPLUS
- (28) Yasuda, H; Makromol Chem Macromol Symp 1993, V67, P187 HCPLUS

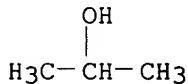
IT 2172-12-5, Yttrium triisopropoxide 3504-40-3, Samarium
triisopropoxide 19236-15-8, Néodymium triisopropoxide

RL: CAT (Catalyst use); USES (Uses)

(catalysts; anionic ring opening polymn. of
oxygenated heterocycles with supported zirconium and rare earths
alkoxide catalyst in presence of benzyl alc.)

RN 2172-12-5 HCPLUS

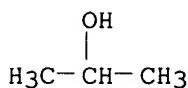
CN 2-Propanol, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

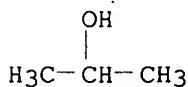
RN 3504-40-3 HCPLUS

CN 2-Propanol, samarium(3+) salt (9CI) (CA INDEX NAME)



1/3 Sm(III)

RN 19236-15-8 HCPLUS
 CN 2-Propanol, neodymium(3+) salt (9CI) (CA INDEX NAME)

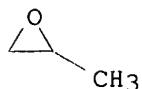


1/3 Nd(III)

IT 75-21-8, Ethylene oxide, reactions
 75-56-9, Propylene oxide, reactions
 RL: PRP (Properties); RCT (Reactant)
 (kinetics of anionic ring opening polymn. of
 oxygenated heterocycles with supported zirconium and rare earths
 alkoxide catalyst in presence of benzyl alc.)
 RN 75-21-8 HCPLUS
 CN Oxirane (9CI) (CA INDEX NAME)

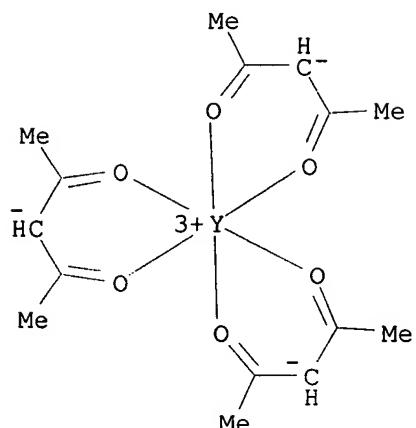


RN 75-56-9 HCPLUS
 CN Oxirane, methyl- (9CI) (CA INDEX NAME)



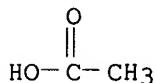
L28 ANSWER 5 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 2000:201700 HCPLUS
 DN 132:334842
 TI Copolymerization of carbon dioxide, propylene oxide, and cyclohexene oxide
 by a yttrium-metal coordination catalyst system
 AU Tan, Chung-Sung; Chang, Char-Fu; Hsu, Tsung-Ju
 CS Department of Chemical Engineering, National Tsing Hua University,
 Hsinchu, 30043, Taiwan
 SO Prepr. - Am. Chem. Soc., Div. Pet. Chem. (2000), 45(1), 100-103
 CODEN: ACPCAT; ISSN: 0569-3799
 PB American Chemical Society, Division of Petroleum Chemistry
 DT Journal
 LA English

CC 35-3 (Chemistry of Synthetic High Polymers)
AB Aliph.-cycloaliph. polycarbonates could be produced effectively by **ring-opening** copolymer. of cyclohexene oxide and propylene oxide with CO₂ using a cocatalyst system of Y(F₃CCO₂H)₃, Et₂Zn, and glycerol.
ST polycarbonate propylene oxide cyclohexene oxide based; cycloaliph aliph polycarbonate prepn yttrium catalyst; **ring opening** polymn catalyst polycarbonate prepn
IT Polycarbonates, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(aliph., cycloaliph.-; prepn. using yttrium-based polymn. catalysts)
IT Polymerization catalysts
(**ring-opening**; for copolymer. of cyclohexene oxide and propylene oxide with carbon dioxide)
IT 56-81-5, Glycerol, uses 557-20-0, Diethylzinc 10361-93-0, Yttrium trinitrate 15554-47-9, Yttrium tris(acetylacetone) 23363-14-6, Yttrium triacetate 37737-28-3, Yttrium tris(trifluoroacetate) 114012-65-6, Yttrium tris(2-ethylhexanoate)
RL: CAT (Catalyst use); USES (Uses)
(in catalysts for copolymer. of cyclohexene oxide and propylene oxide with carbon dioxide)
IT 119727-39-8P, Carbon dioxide-cyclohexene oxide-propylene oxide copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(prep. using yttrium-based polymn. catalysts)
RE.CNT 8
RE
(1) Chen, X; Macromolecules 1991, V24, P5305 HCPLUS
(2) Hino, Y; Polym J 1984, V16, P159 HCPLUS
(3) Inoue, S; Makromol Chem 1969, V130, P210 HCPLUS
(4) Kuran, W; Makromol Chem 1977, V178, P2149 HCPLUS
(5) Nishimura, M; Makromol Chem 1978, V179, P1913 HCPLUS
(6) Savage, P; AIChE J 1995, V41, P1723 HCPLUS
(7) Tan, C; Macromolecules 1997, V30, P3147 HCPLUS
(8) Yoshida, Y; Polym J 1980, V12, P763 HCPLUS
IT 15554-47-9, Yttrium tris(acetylacetone) 23363-14-6,
Yttrium triacetate 37737-28-3, Yttrium tris(trifluoroacetate)
114012-65-6, Yttrium tris(2-ethylhexanoate)
RL: CAT (Catalyst use); USES (Uses)
(in catalysts for copolymer. of cyclohexene oxide and propylene oxide with carbon dioxide)
RN 15554-47-9 HCPLUS
CN Yttrium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



RN 23363-14-6 HCPLUS

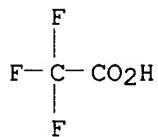
CN Acetic acid, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



1/3 Y(III)

RN 37737-28-3 HCPLUS

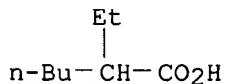
CN Acetic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

RN 114012-65-6 HCPLUS

CN Hexanoic acid, 2-ethyl-, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

IT 119727-39-8P, Carbon dioxide-cyclohexene oxide-propylene oxide

copolymer

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. using yttrium-based polymn. catalysts)

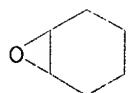
RN 119727-39-8 HCPLUS

CN 7-Oxabicyclo[4.1.0]heptane, polymer with carbon dioxide and methyloxirane
(9CI) (CA INDEX NAME)

CM 1

CRN 286-20-4

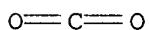
CMF C6 H10 O



CM 2

CRN 124-38-9

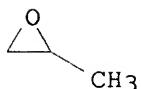
CMF C O2



CM 3

CRN 75-56-9

CMF C3 H6 O



L28 ANSWER 6 OF 38 HCPLUS COPYRIGHT 2001 ACS

AN 2000:87354 HCPLUS

DN 132:93838

TI Ring-opening polymerization of lactone under catalysis
of rare-earth compound

IN Yuan, Minglong; Deng, Xianmo; Xiong, Chengdong

PA Chengdu Institute of Organic Chemistry, Chinese Academy of Sciences, Peop.
Rep. ChinaSO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.
CODEN: CNXXEV

DT Patent

LA Chinese

IC ICM C08G065-10

CC 35-7 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29, 37

FAN.CNT 1

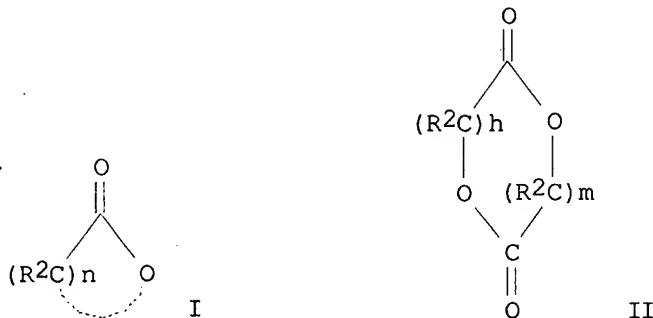
PATENT NO.

KIND DATE

APPLICATION NO. DATE

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PI CN 1175601 A 19980311 CN 1996-117690 19960904
OS MARPAT 132:93838
GI



AB The polymn. of lactone is carried out at 100-250.degree. for 10-3000 min in inert gas or vacuum in presence of catalysts of rare-earth org. carboxylate (LnZ) or halogenated org. carboxylate, where Ln is Sc, or Y or one of lanthanide, Z is org. acid radical or halogenated org. acid radical (HCOO-, CH₃COO-, CH₃CH₂COO-, CH₃CH₂CH₂COO-, ClCH₂COO-, CCl₃COO-, CF₃COO-, C₆H₅-COO-, -OOCCH₂CH₂COO-, BrCH₂COO-). The molar ratio of monomer to catalyst is 200-20000. The lactone has structural formula I or II, where n = 3-5, R is H or alkyl group, h or m = 1 or 2; and may be DL-lactide, .epsilon.-caprolactone, glycolide, and 3-methyl-glycolide. The polymn. comprises homopolymn. and copolymn. between lactones or lactones and **polyether**, and the **polyether** is selected from polyethylene glycol, polypropylene glycol, and polybutylene glycol.

ST lactone polymn rare earth carboxylate catalysis; **ring-opening** polymn lactone lanthanum catalyst

IT Rare earth compounds

RL: CAT (Catalyst use); USES (Uses)
(carboxylic acid salts, catalyst; **ring-opening** polymn. of lactone under catalysis of rare-earth compd.)

IT **Polyethers**, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)
(polyester-; **ring-opening** polymn. of lactone and **polyether** under catalysis of rare-earth compd.)

IT Polyesters, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)
(**polyether**-; **ring-opening** polymn. of lactone and **polyether** under catalysis of rare-earth compd.)

IT Polyesters, preparation

RL: IMF (Industrial manufacture); PREP (Preparation)
(**ring-opening** polymn. of lactone under catalysis of rare-earth compd.)

IT Polymerization catalysts

(**ring-opening**; **ring-opening** polymn. of lactone under catalysis of rare-earth compd.)

IT 24980-41-4P, .epsilon.-Caprolactone homopolymer 26202-08-4P, Glycolide homopolymer 26680-10-4P 26780-50-7P, Glycolide-D,L-lactide copolymer 41706-81-4P, .epsilon.-Caprolactone-Glycolide copolymer 57321-94-5P 70524-20-8P, .epsilon.-Caprolactone-D,L-lactide copolymer 119388-27-1P

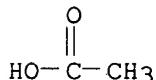
IT RL: IMF (Industrial manufacture); PREP (Preparation)
(**ring-opening** polymn. of lactone under catalysis of rare-earth compd.)

IT 537-03-1, Lanthanum oxalate 917-70-4, Lanthanum acetate 2081-11-0, Lanthanum formate 14518-63-9, Lanthanum benzoate 16922-04-6, Samarium acetate 20101-71-7
 20101-73-9 20325-14-8 20532-74-5
 23363-14-6, Yttrium acetate 25681-97-4, Lanthanum propionate 25682-05-7 42138-71-6, Neodymium trichloroacetate 42181-51-1 70236-92-9, Lanthanum trifluoroacetate 70236-99-6 254989-96-3
 RL: CAT (Catalyst use); USES (Uses)
 (ring-opening polymn. of lactone under catalysis of rare-earth compd. contg.)

IT 917-70-4, Lanthanum acetate 2081-11-0, Lanthanum formate 14518-63-9, Lanthanum benzoate 16922-04-6, Samarium acetate 20101-71-7 20101-73-9 20325-14-8
 20532-74-5 23363-14-6, Yttrium acetate 25681-97-4, Lanthanum propionate 25682-05-7 42138-71-6, Neodymium trichloroacetate 42181-51-1 70236-92-9, Lanthanum trifluoroacetate 70236-99-6 254989-96-3
 RL: CAT (Catalyst use); USES (Uses)
 (ring-opening polymn. of lactone under catalysis of rare-earth compd. contg.)

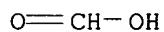
RN 917-70-4 HCPLUS

CN Acetic acid, lanthanum(3+) salt (8CI, 9CI) (CA INDEX NAME)



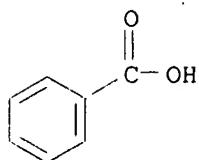
1/3 La(III)

RN 2081-11-0 HCPLUS
 CN Formic acid, lanthanum(3+) salt (8CI, 9CI) (CA INDEX NAME)



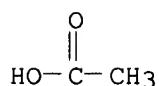
1/3 La(III)

RN 14518-63-9 HCPLUS
 CN Benzoic acid, lanthanum(3+) salt (8CI, 9CI) (CA INDEX NAME)



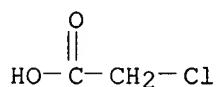
1/3 La(III)

RN 16922-04-6 HCAPLUS
 CN Acetic acid, samarium salt (8CI, 9CI) (CA INDEX NAME)



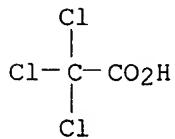
x Sm(x)

RN 20101-71-7 HCAPLUS
 CN Acetic acid, chloro-, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



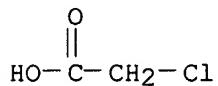
1/3 Y(III)

RN 20101-73-9 HCAPLUS
 CN Acetic acid, trichloro-, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



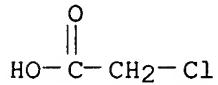
1/3 Y(III)

RN 20325-14-8 HCAPLUS
 CN Acetic acid, chloro-, lanthanum(3+) salt (8CI, 9CI) (CA INDEX NAME)



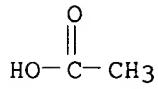
1/3 La(III)

RN 20532-74-5 HCPLUS
CN Acetic acid, chloro-, neodymium(3+) salt (8CI, 9CI) (CA INDEX NAME)



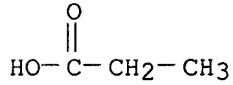
1/3 Nd(III)

RN 23363-14-6 HCPLUS
CN Acetic acid, yttrium(3+) salt (8CI, 9CI) (CA INDEX NAME)



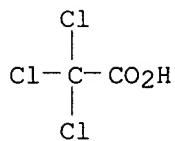
1/3 Y(III)

RN 25681-97-4 HCPLUS
CN Propanoic acid, lanthanum(3+) salt (9CI) (CA INDEX NAME)



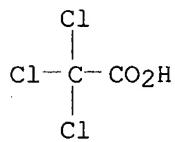
1/3 La(III)

RN 25682-05-7 HCPLUS
CN Acetic acid, trichloro-, lanthanum(3+) salt (8CI, 9CI) (CA INDEX NAME)



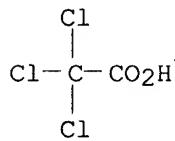
1/3 La(III)

RN 42138-71-6 HCPLUS
 CN Acetic acid, trichloro-, neodymium(3+) salt (9CI) (CA INDEX NAME)



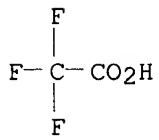
1/3 Nd(III)

RN 42181-51-1 HCPLUS
 CN Acetic acid, trichloro-, samarium(3+) salt (9CI) (CA INDEX NAME)



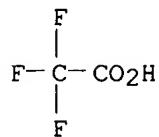
1/3 Sm(III)

RN 70236-92-9 HCPLUS
 CN Acetic acid, trifluoro-, lanthanum(3+) salt (9CI) (CA INDEX NAME)



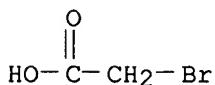
1/3 La(III)

RN 70236-99-6 HCPLUS
 CN Acetic acid, trifluoro-, erbium(3+) salt (9CI) (CA INDEX NAME)



1/3 Er(III)

RN 254989-96-3 HCAPLUS
 CN Acetic acid, bromo-, lanthanum(3+) salt (9CI) (CA INDEX NAME)



1/3 La(III)

L28 ANSWER 7 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1999:748336 HCAPLUS
 DN 132:3594
 TI Copolymerization of tetrahydrofurans and cyclic anhydrides
 IN Drysdale, Neville Everton
 PA E. I. du Pont de Nemours and Company, USA
 SO U.S., 7 pp., Cont.-in-part of U.S. Ser. No. 505,293, abandoned.
 CODEN: USXXAM
 DT Patent
 LA English
 IC C08G063-42; C07C067-24
 NCL 528271000
 CC 35-3 (Chemistry of Synthetic High Polymers)
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5990264	A	19991123	US 1996-690119	19960731
	WO 9419392	A1	19940901	WO 1993-US10140	19931029
	W: JP, KR, US RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
PRAI	US 1993-21369		19930223		
	WO 1993-US10140		19931029		
	US 1995-505293		19950822		
OS	MARPAT 132:3594				
AB	Poly(ester-ethers) are produced by the copolymn. of tetrahydrofurans and anhydrides using metal perfluoroalkylsulfonates and related compds. as catalysts. The resulting copolymers are useful as intermediates for monomers for use in other polymns. Thus, maleic anhydride-tetrahydrofuran copolymer was prep'd. using Y triflate as a catalyst.				
ST	perfluoroalkylsulfonate catalyst polyester ether manuf; polyether ester manuf perfluoroalkylsulfonate catalyst; maleic anhydride THF polymn catalyst yttrium triflate				
IT	Perfluoro compounds RL: CAT (Catalyst use); USES (Uses)				

(alkane sulfonates; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Sulfonates
RL: CAT (Catalyst use); USES (Uses)
(alkanesulfonates, perfluoro; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Cyclic compounds
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(anhydrides, polymers with THF; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Coordination compounds
Rare earth compounds
Transition metal compounds
RL: CAT (Catalyst use); USES (Uses)
(copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Monomers
RL: IMF (Industrial manufacture); PREP (Preparation)
(copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Anhydrides
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(cyclic, polymers with THF; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Metals, uses
RL: CAT (Catalyst use); USES (Uses)
(perfluoroalkylsulfonates; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Polyethers, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(polyester-; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Polyesters, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(polyether-; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT Polymerization catalysts
(ring-opening; copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT 27532-13-4 34622-08-7, Neodymium Triflate 52093-30-8,
Yttrium Triflate 54761-04-5, Ytterbium Triflate 89672-77-5
135179-20-3 139177-62-1, Dysprosium Triflate 139177-64-3
, Erbium Triflate 144026-79-9, Scandium Triflate
RL: CAT (Catalyst use); USES (Uses)
(copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT 111287-32-2P 164385-22-2P 164385-23-3P
RL: IMF (Industrial manufacture); PREP (Preparation)
(copolymn. of tetrahydrofurans and cyclic anhydrides and catalysts for)

IT 25657-73-2P, Maleic anhydride-tetrahydrofuran copolymer 29564-74-7P,
Succinic anhydride-tetrahydrofuran copolymer 29564-75-8P, Phthalic
anhydride-tetrahydrofuran copolymer 165890-28-8P, cis-1,2-
Cyclohexanedicarboxylic anhydride-tetrahydrofuran copolymer
165890-30-2P, Succinic anhydride-3-methyltetrahydrofuran-tetrahydrofuran
copolymer 165890-31-3P, Pyromellitic dianhydride-tetrahydrofuran
copolymer 250678-34-3P, Norbornene-2,3-dicarboxylic anhydride-
tetrahydrofuran copolymer
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)

IT (copolymer. of tetrahydrofurans and cyclic anhydrides and catalysts for)
 2923-28-6, Silver triflate 12083-48-6, Vanadocene dichloride
 12116-66-4, Hafnocene dichloride 54039-38-2,
 Bis(pentamethylcyclopentadienyl)zirconium dichloride
 RL: RCT (Reactant)

RE.CNT 16 (copolymer. of tetrahydrofurans and cyclic anhydrides and catalysts for)

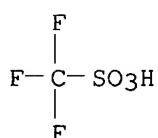
RE

- (1) Anon; WO 88/02661 1988 HCPLUS
- (2) Borowsky, S; Organometallics 1991, V10, P1268
- (3) Dorai; US 5130470 1992 HCPLUS
- (4) Dreyfuss, P; Polymer Letters Ed 1976, V14(3), P139 HCPLUS
- (5) Drysdale; US 5430122 1995 HCPLUS
- (6) Drysdale; US 5475069 1995 HCPLUS
- (7) Drysdale; US 5478920 1995 HCPLUS
- (8) Drysdale; US 5541346 1996 HCPLUS
- (9) Farooq; US 5084586 1992 HCPLUS
- (10) Habermeier, J; J Poly Science: Part C 1967, V16, P2131
- (11) Hilt, V; Makromol Chem 1967, V101, P246
- (12) Kropp; US 3842019 1974
- (13) Matsuda; US 3864287 1975 HCPLUS
- (14) Matsukura, K; 1973, V78(16), P32
- (15) Matsuura; US 3464958 1969
- (16) Oechsner, W; Makromol Chem 1971, V150, P1 HCPLUS

IT 34622-08-7, Neodymium Triflate 52093-30-8, Yttrium
 Triflate 54761-04-5, Ytterbium Triflate 139177-62-1,
 Dysprosium Triflate 139177-64-3, Erbium Triflate
 144026-79-9, Scandium Triflate

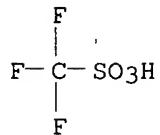
RL: CAT (Catalyst use); USES (Uses)

(copolymer. of tetrahydrofurans and cyclic anhydrides and catalysts for)
 RN 34622-08-7 HCPLUS
 CN Methanesulfonic acid, trifluoro-, neodymium(3+) salt (9CI) (CA INDEX
 NAME)



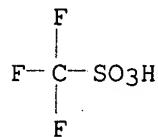
1/3 Nd(III)

RN 52093-30-8 HCPLUS
 CN Methanesulfonic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



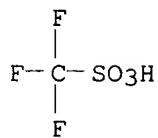
1/3 Y(III)

RN 54761-04-5 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, ytterbium(3+) salt (9CI) (CA INDEX NAME)



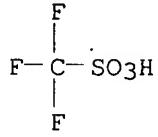
1/3 Yb(III)

RN 139177-62-1 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, dysprosium(3+) salt (9CI) (CA INDEX NAME)



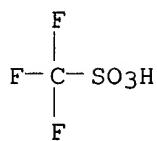
1/3 Dy(III)

RN 139177-64-3 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, erbium(3+) salt (9CI) (CA INDEX NAME)



1/3 Er(III)

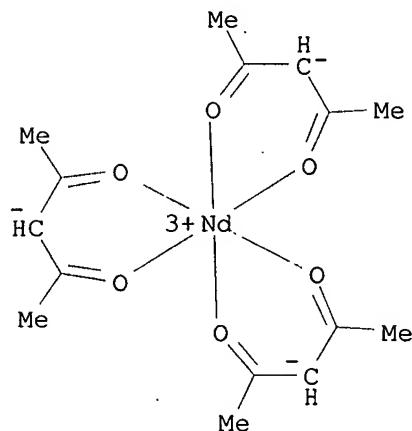
RN 144026-79-9 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, scandium(3+) salt (9CI) (CA INDEX NAME)



1/3 Sc(III)

L28 ANSWER 8 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 1999:687015 HCPLUS
 DN 131:351773
 TI **Ring-opening** alternating copolymerization of phthalic anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃
 AU Fang, Jianghua; Shen, Zhiqian
 CS Department of Chemistry, Ningbo Normal College, Ningbo, Peop. Rep. China
 SO Gaofenzi Cailiao Kexue Yu Gongcheng (1999), 15(5), 56-58
 CODEN: GCKGEI; ISSN: 1000-7555
 PB "Gaofenzi Cailiao Kexue Yu Gongcheng" Bianjibu
 DT Journal
 LA Chinese
 CC 35-7 (Chemistry of Synthetic High **Polymers**)
 AB The Nd(acac)₃-Al(i-Bu)₃ was found to be a good catalyst for the alternating copolymer of phthalic anhydride with epichlorohydrin. The structure of the copolymer was studied with IR and ¹H-NMR. The copolymer is a product of high alternation. There is more than 42% phthalic anhydride in the copolymer by calcg. the ratio of peak area of ¹H-NMR from the copolymer obtained from different monomer ratio. The copolymer can be realized in the solvent's such as arom. hydrocarbon and alkane. The yield and [.eta.] are higher in arom. hydrocarbon than in other solvents. In toluene, the yield is 89.8% [.eta.] = 0.083 dL/g. The way of adding the raw materials to the reaction system influences the yield. The better order is PA .fwdarw. sol. .fwdarw. ECH .fwdarw. cat. The more suitable concn. of catalysts is [Nd] = 1.0 .times. 10⁻² mol/L, [Al]/[Nd] = 6 .apprx. 8. The higher is the temp. of copolymer, the higher, are the yield and [.eta.]. The more suitable temp. is 80.degree.C. The kinetic studies indicate that the copolymer reaction is first order with respect to both monomer concn. and catalyst concn. .DELTA.E = 112.0 kJ/mol.
 ST phthalic anhydride epichlorohydrin alternating copolymer
 IT Polymerization catalysts
 (**ring-opening**; **ring-opening**
 alternating copolymer of phthalic anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃)
 IT 100-99-2, Triisobutylaluminum, uses 16743-67-2,
 Tris(acetylacetonato)neodymium trihydrate
 RL: CAT (Catalyst use); USES (Uses)
 (**ring-opening** alternating copolymer of phthalic anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃)
 IT 25684-71-3P, Phthalic anhydride-epichlorohydrin copolymer
 151125-41-6P, Epichlorohydrin-phthalic anhydride copolymer, sru
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (**ring-opening** alternating copolymer of phthalic anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃)
 IT 16743-67-2, Tris(acetylacetonato)neodymium trihydrate
 RL: CAT (Catalyst use); USES (Uses)
 (**ring-opening** alternating copolymer of phthalic

anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃
 RN 16743-67-2 HCAPLUS
 CN Neodymium, tris(2,4-pantanediionato-.kappa.O,.kappa.O')-, trihydrate,
 (OC-6-11)- (9CI) (CA INDEX NAME)

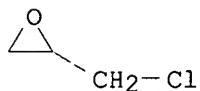


● 3 H₂O

IT 25684-71-3P, Phthalic anhydride-epichlorohydrin copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (ring-opening alternating copolymer of phthalic
 anhydride and epichlorohydrin by Nd(acac)₃-Al(i-Bu)₃)
 RN 25684-71-3 HCAPLUS
 CN 1,3-Isobenzofurandione, polymer with (chloromethyl)oxirane (9CI) (CA
 INDEX NAME)

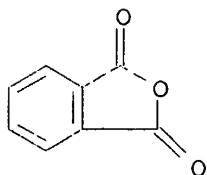
CM 1

CRN 106-89-8
 CMF C₃ H₅ Cl O



CM 2

CRN 85-44-9
 CMF C₈ H₄ O₃



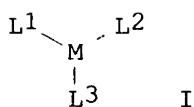
L28 ANSWER 9 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1999:549313 HCAPLUS
 DN 131:170759
 TI Process for producing **polyethers** by **ring-opening** polymerization of substituted **epoxides** using rare earth metal compound catalysts
 IN Miyanaga, Seiichi; Kawamukai, Hiroshi; Oda, Takashi
 PA Kao Corporation, Japan
 SO PCT Int. Appl., 51 pp.
 CODEN: PIXXD2
 DT Patent
 LA Japanese
 IC ICM C08G065-10
 CC 35-3 (Chemistry of Synthetic High **Polymers**)
 Section cross-reference(s): 67

at applicants

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9942513	A1	19990826	WO 1999-JP687	19990217
	W: CN, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1057845	A1	20001206	EP 1999-905212	19990217
	R: DE, FR, GB				
PRAI	JP 1998-38343	A	19980220		
	WO 1999-JP687	W	19990217		

GI



AB A process by which a substituted **epoxide** whose polymn. to a high degree has been extremely difficult or impossible is easily polymd. to efficiently prep. a **polyether** with high d.p. The process comprises polymg. a substituted **epoxide** (excluding propylene oxide and epihalohydrins) by **ring-opening** polymn. in the presence of compds. L1ML2L3 (M = rare earth element selected among Sc, Y, and lanthanide metal; L1-L3 = ligand combining with O) and a reducing compd. to obtain a **polyether**. Thus, heating stearyl glycidyl ether in the presence of samarium isopropoxide and methylaluminoxane (Sm/Al mol ratio 1:6) in PhMe at 130.degree. for 10 h gave a polymer with Mw 1,610,000, and Mn 140,000.
 ST rare earth metal compd polymn catalyst **epoxide**; substituted **epoxide** polymn catalyst; stearyl glycidyl ether polymn catalyst; samarium isopropoxide polymn catalyst **epoxide**

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me; prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT Polysiloxanes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(polyoxyalkylene-; prepn. of **polyethers** by **ring-**
opening polymn. of substituted **epoxides** using rare
earth metal compd. catalysts)

IT Polyoxyalkylenes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(polysiloxane-; prepn. of **polyethers** by **ring-**
opening polymn. of substituted **epoxides** using rare
earth metal compd. catalysts)

IT Rare earth compounds
RL: CAT (Catalyst use); USES (Uses)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT Polyoxyalkylenes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT Polymerization catalysts
(**ring-opening**, rare earth metal compds.; prepn. of
polyethers by **ring-opening** polymn. of
substituted **epoxides** using rare earth metal compd. catalysts)

IT 557-20-0, Diethylzinc 2263-49-2, Samarium tris(trifluoroacetate)
3504-40-3, Samarium isopropoxide 12581-48-5
15492-50-9 15632-39-0
RL: CAT (Catalyst use); USES (Uses)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT 25722-70-7P, Polyglycidol 28325-89-5P, Methyl glycidyl
ether homopolymer 31740-70-2P 88581-96-8P, Lauryl
glycidyl ether homopolymer 151345-78-7P 195884-46-9P
238422-58-7P 238422-59-8P 238422-60-1P
238422-61-2P 238422-62-3P 238422-63-4P,
Ethylene oxide-stearyl glycidyl ether copolymer
238422-64-5P, Methyl methacrylate-stearyl glycidyl ether copolymer
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT 114482-33-6P 157723-26-7P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

IT 106-92-3 541-05-9 678-39-7, 2-(Perfluorooctyl)ethanol
1066-35-9, Chlorodimethylsilane
RL: RCT (Reactant)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

RE.CNT 7

RE

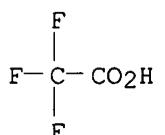
(1) Minnesota Mining And Manufacturing Co; US 4497861 A HCPLUS
 (2) Minnesota Mining And Manufacturing Co; JP 604568 A 1985
 (3) Sagami Chemical Research Center; JP 07109351 A 1995 HCPLUS
 (4) The Bf Goodrich Co; US 4680358 A HCPLUS
 (5) The Bf Goodrich Co; JP 62174229 A 1993 HCPLUS
 (6) Yasuda, H; MACROMOL CHEM PHYS 1995, V196, P2417 HCPLUS
 (7) Zhang, Y; INORGANICA CHIMITA ACTA 1989, V155, P263 HCPLUS
 IT 2263-49-2, Samarium tris(trifluoroacetate) 3504-40-3,
 Samarium isopropoxide 12581-48-5 15492-50-9 15632

-39-0

RL: CAT (Catalyst use); USES (Uses)
 (prepn. of polyethers by ring-opening
 polymn. of substituted epoxides using rare earth metal compd.
 catalysts)

RN 2263-49-2 HCPLUS

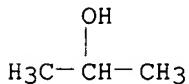
CN Acetic acid, trifluoro-, samarium(3+) salt (9CI) (CA INDEX NAME)



1/3 Sm(III)

RN 3504-40-3 HCPLUS

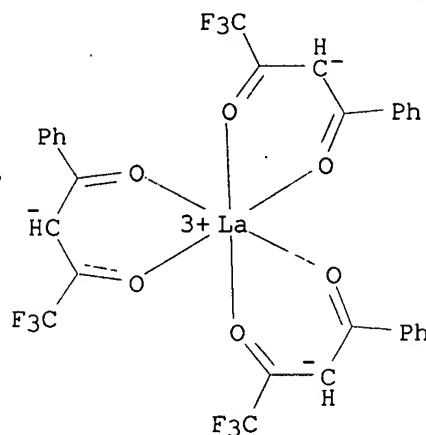
CN 2-Propanol, samarium(3+) salt (9CI) (CA INDEX NAME)



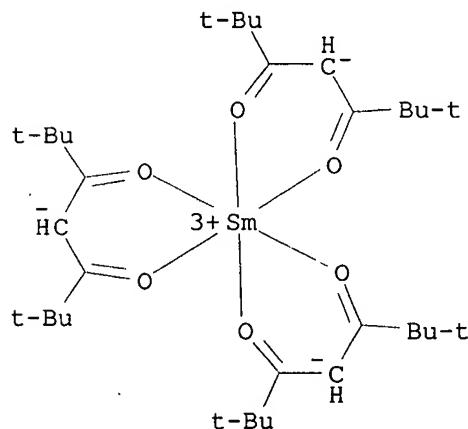
1/3 Sm(III)

RN 12581-48-5 HCPLUS

CN Lanthanum, tris(4,4,4-trifluoro-1-phenyl-1,3-butanedionato-.kappa.O,.kappa.O')- (9CI) (CA INDEX NAME)

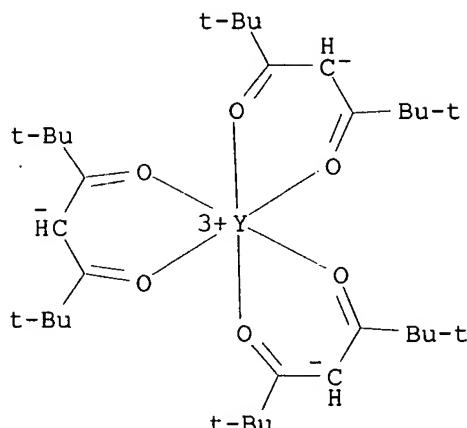


RN 15492-50-9 HCAPLUS

CN Samarium, tris(2,2,6,6-tetramethyl-3,5-heptanedionato-.kappa.O, .kappa.O')-
, (OC-6-11)- (9CI) (CA INDEX NAME)

RN 15632-39-0 HCAPLUS

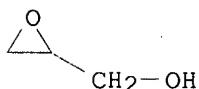
CN Yttrium, tris(2,2,6,6-tetramethyl-3,5-heptanedionato-.kappa.O, .kappa.O')-
, (OC-6-11)- (9CI) (CA INDEX NAME)



IT 25722-70-7P, Polyglycidol 28325-89-5P, Methyl glycidyl ether homopolymer 31740-70-2P 88581-96-8P, Lauryl glycidyl ether homopolymer 151345-78-7P 195884-46-9P 238422-58-7P 238422-59-8P 238422-60-1P 238422-61-2P 238422-62-3P 238422-63-4P, Ethylene oxide-stearyl glycidyl ether copolymer 238422-64-5P, Methyl methacrylate-stearyl glycidyl ether copolymer
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. of polyethers by ring-opening
 polymn. of substituted epoxides using rare earth metal compd.
 catalysts)

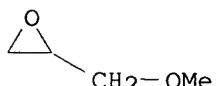
RN 25722-70-7 HCPLUS
 CN Oxiranemethanol, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 556-52-5
 CMF C3 H6 O2

RN 28325-89-5 HCPLUS
 CN Oxirane, (methoxymethyl)-, homopolymer (9CI) (CA INDEX NAME)

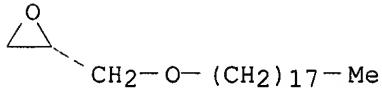
CM 1

CRN 930-37-0
 CMF C4 H8 O2

RN 31740-70-2 HCPLUS
 CN Oxirane, [(octadecyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

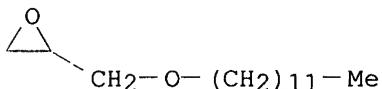
CRN 16245-97-9
CMF C21 H42 02



RN 88581-96-8 HCPLUS
CN Oxirane, [(dodecyloxy)methyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

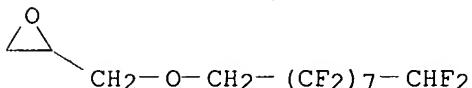
CRN 2461-18-9
CMF C15 H30 O2



RN 151345-78-7 HCPLUS
CN Oxirane, [(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl)oxy]methyl
-, homopolymer (9CI) (CA INDEX NAME)

CM 1

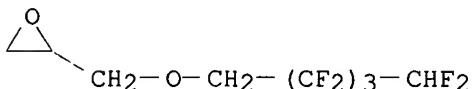
CRN 125370-60-7
CMF C12 H8 F16 O2



RN 195884-46-9 HCAPLUS
CN Oxirane, [(2,2,3,3,4,4,5,5-octafluoropentyl)oxy]methyl-, homopolymer
(9CI) (CA INDEX NAME)

CM 1

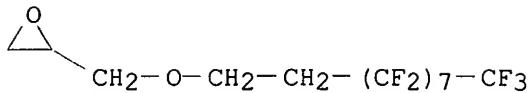
CRN 19932-27-5
CMF C8 H8 F8 O2



RN 238422-58-7 HCAPLUS
CN Oxirane, [(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-
heptadecafluorodecyl)oxyl]methyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

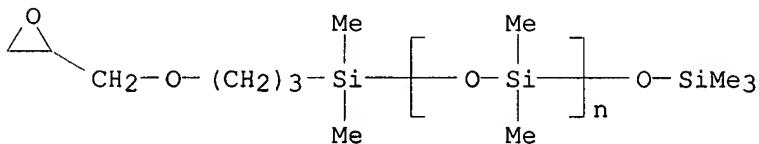
CRN 114482-33-6
 CMF C13 H9 F17 O2



RN 238422-59-8 HCAPLUS
 CN Poly[oxy(dimethylsilylene)], .alpha.-[dimethyl[3-(oxiranylmethoxy)propyl]silyl]-.omega.-[(trimethylsilyl)oxy]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

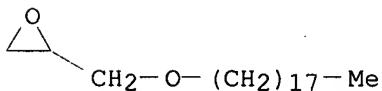
CRN 157723-26-7
 CMF (C₂ H₆ O Si)_n C₁₁ H₂₆ O₃ Si₂
 CCI PMS



RN 238422-60-1 HCAPLUS
 CN Oxirane, [(octadecyloxy)methyl]-, polymer with [(octyloxy)methyl]oxirane (9CI) (CA INDEX NAME)

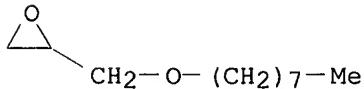
CM 1

CRN 16245-97-9
 CMF C₂₁ H₄₂ O₂



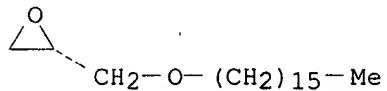
CM 2

CRN 3385-66-8
 CMF C₁₁ H₂₂ O₂

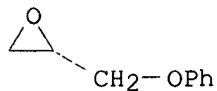


RN 238422-61-2 HCAPLUS
 CN Oxirane, [(hexadecyloxy)methyl]-, polymer with (phenoxyethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 15965-99-8
CMF C19 H38 O2

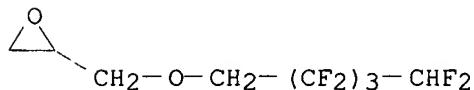
CM 2

CRN 122-60-1
CMF C9 H10 O2

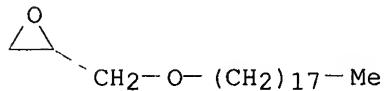
RN 238422-62-3 HCAPLUS

CN Oxirane, [(octadecyloxy)methyl]-, polymer with [(2,2,3,3,4,4,5,5-octafluoropentyl)oxy]methyl]oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 19932-27-5
CMF C8 H8 F8 O2

CM 2

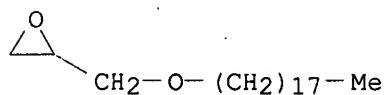
CRN 16245-97-9
CMF C21 H42 O2

RN 238422-63-4 HCAPLUS

CN Oxirane, [(octadecyloxy)methyl]-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 16245-97-9
CMF C21 H42 O2



CM 2

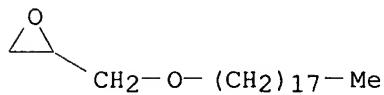
CRN 75-21-8
CMF C2 H4 O



RN 238422-64-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with
[(octadecyloxy)methyl]oxirane (9CI) (CA INDEX NAME)

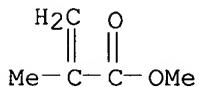
CM 1

CRN 16245-97-9
CMF C21 H42 02



CM 2

CRN 80-62-6
CMF C5 H8 O2

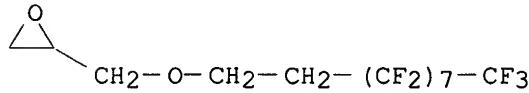


IT 114482-33-6P 157723-26-7P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(prepn. of **polyethers** by **ring-opening**
polymn. of substituted **epoxides** using rare earth metal compd.
catalysts)

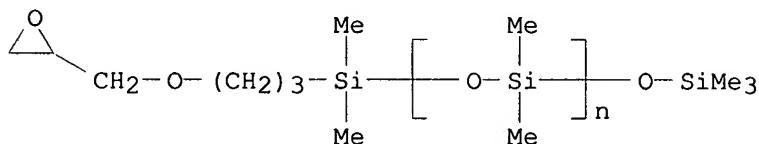
RN 114482-33-6 HCAPLUS

CN Oxirane, [[(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptadecafluorodecyl)oxy]methyl]- (9CI) (CA INDEX NAME)



RN 157723-26-7 HCAPLUS
CN Poly[oxy(dimethylsilylene)], .alpha.-[dimethyl[3-

(oxiranylmethoxy)propyl]silyl]-.omega.-[(trimethylsilyl)oxy]- (9CI) (CA INDEX NAME)



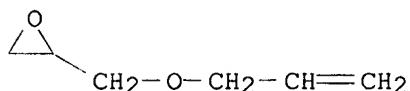
IT 106-92-3

RL: RCT (Reactant)

(prepn. of polyethers by ring-opening
polymn. of substituted epoxides using rare earth metal compd.
catalysts)

RN 106-92-3 HCAPLUS

CN Oxirane, [(2-propenyloxy)methyl]- (9CI) (CA INDEX NAME)



L28 ANSWER 10 OF 38 HCAPLUS COPYRIGHT 2001 ACS

AN 1999:262195 HCAPLUS

DN 130:312236

TI Catalyst composition based on a grafted metal oxide, its preparation and use in ring-opening polymerization involving O-containing rings

IN Delaite, Christelle; Hamaide, Thierry; Spitz, Roger; Tortosa, Karine

PA Rhodia Chimie, Fr.

SO PCT Int. Appl., 19 pp.

CODEN: PIXXD2

DT Patent

LA French

IC ICM B01J031-12

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9919064	A1	19990422	WO 1998-FR2181	19981012
	W: BR, CA, CN, JP, KR, MX, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2769521	A1	19990416	FR 1997-12827	19971014
	FR 2769521	B1	19991210		
	EP 1024898	A1	20000809	EP 1998-949040	19981012
	R: BE, DE, DK, ES, FR, GB, IT, NL, PT, FI				
	BR 9814609	A	20001003	BR 1998-14609	19981012
	JP 2001519233	T2	20011023	JP 2000-515687	19981012
PRAI	FR 1997-12827	A	19971014		
	WO 1998-FR2181	W	19981012		
OS	MARPAT 130:312236				
AB	The compn. comprises a support consisting of a metal oxide capable of having OH functions, whereon are grafted M(OR) _n groups, in which M is Sc, Zr, Hf, Nb, Ta, a rare earth, or an actinide; R is an org. group; and n is				

a pos. integer. The compn. is prep'd. by forming a suspension of the support, then contacting and reacting the suspension with $M(OR)_{n+1}$. Thus, silica was heated to 100.degree. in 30 min, from 130.degree. to 450.degree. in 1 h, and at 450.degree. for 2 h, then cooled under vacuum, suspended in toluene under Ar, and treated with an $Y(OPr\text{-iso})_3$ soln. to give a catalyst contg. 11.4 wt.% Y and 2.14 wt.% C. Caprolactone was polymd. with this catalyst in toluene contg. anhyd. iso-PrOH for 10 min to reach av. d.p. 10.

ST **ring opening polymn catalyst; yttrium isopropoxide grafted silica catalyst; caprolactone polymn catalyst**

IT **Polycarbonates, preparation**
RL: IMF (Industrial manufacture); PREP (Preparation)
(aliph.; catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

IT **Polyoxyalkylenes, preparation**
RL: IMF (Industrial manufacture); PREP (Preparation)
(block; catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

IT **Ring opening polymerization catalysts**
(catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

IT **Aliphatic polyesters**
Polyoxyalkylenes, preparation
RL: IMF (Industrial manufacture); PREP (Preparation).
(catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

IT 100-51-6D, Benzyl alcohol, reaction products with silica and yttrium isopropoxide 1314-20-1D, Thorium oxide, reaction products with metal alkoxides 1314-23-4D, Zirconium oxide, reaction products with metal alkoxides 1344-28-1D, Alumina, reaction products with neodymium isopropoxide 2172-12-5D, Yttrium isopropoxide, reaction products with silica 3504-40-3D, Samarium isopropoxide, reaction products with alumina 7631-86-9D, Silica, reaction products with yttrium isopropoxide 11129-18-3D, Cerium oxide, reaction products with metal alkoxides 13421-85-7D, Zirconium isobutoxide, reaction products with alumina 13463-67-7D, Titanium oxide, reaction products with metal alkoxides 19236-15-8D, Neodymium isopropoxide, reaction products with alumina
RL: **CAT (Catalyst use); USES (Uses)**
(catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

IT 24980-41-4P, Polycaprolactone 25248-42-4P, Polycaprolactone 25322-68-3P, Poly(ethylene oxide) 25322-69-4P, Poly(propylene oxide) 29035-08-3P, Neopentyl glycol carbonate homopolymer 40872-19-3P, Neopentyl glycol carbonate homopolymer, SRU 106392-12-5P, Ethylene oxide-propylene oxide block copolymer
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalyst compn. based on a grafted metal oxide for **ring-opening polymn. of oxygen heterocycles**)

RE.CNT 3

RE

(1) BASF AG; EP 0776699 A 1997 HCPLUS

(2) Phillips Petroleum Co; EP 0230983 A 1987 HCPLUS

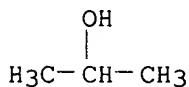
(3) Verpoort, F; WO 9529755 A 1995 HCPLUS

IT 2172-12-5D, Yttrium isopropoxide, reaction products with silica 3504-40-3D, Samarium isopropoxide, reaction products with alumina 19236-15-8D, Neodymium isopropoxide, reaction products with alumina
RL: **CAT (Catalyst use); USES (Uses)**

(catalyst compn. based on a grafted metal oxide for **ring-opening** polymn. of oxygen heterocycles)

RN 2172-12-5 HCAPLUS

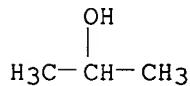
CN 2-Propanol, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

RN 3504-40-3 HCAPLUS

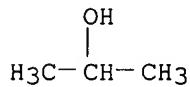
CN 2-Propanol, samarium(3+) salt (9CI) (CA INDEX NAME)



1/3 Sm(III)

RN 19236-15-8 HCAPLUS

CN 2-Propanol, neodymium(3+) salt (9CI) (CA INDEX NAME)



1/3 Nd(III)

IT 25322-69-4P, Poly(propylene oxide) 106392-12-5P,

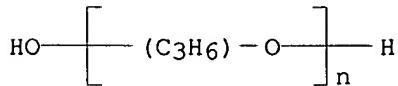
Ethylene oxide-propylene oxide block copolymer

RL: IMF (Industrial manufacture); PREP (Preparation)

(catalyst compn. based on a grafted metal oxide for **ring-opening** polymn. of oxygen heterocycles)

RN 25322-69-4 HCAPLUS

CN Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy- (9CI) (CA INDEX NAME)

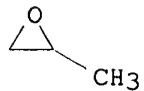


RN 106392-12-5 HCAPLUS

CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
 CMF C3 H6 O



CM 2

CRN 75-21-8
 CMF C2 H4 O



L28 ANSWER 11 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 1999:183146 HCPLUS
 DN 130:325419
 TI Discrete Yttrium(III) Complexes as Lactide Polymerization Catalysts
 AU Chamberlain, Bradley M.; Sun, Yongping; Hagadorn, John R.; Hemmesch, Eric W.; Young, Victor G., Jr.; Pink, Maren; Hillmyer, Marc A.; Tolman, William B.
 CS Department of Chemistry, University of Minnesota, Minneapolis, MN, 55455, USA
 SO Macromolecules (1999), 32(7), 2400-2402
 CODEN: MAMOBX; ISSN: 0024-9297
 PB American Chemical Society
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67, 75, 78
 AB Yttrium complexes ligated to various multidentate ligands were prep'd. and characterized. These complexes catalyzed the polymn. of DL-lactide and their structural differences affected the polymn. rate and the polymer mol. wts.
 ST yttrium complex lactide polymn catalyst; polyester prepn catalyst yttrium complex; ring opening polymn catalyst yttrium; crystal structure yttrium triazacyclononane dinuclear complex catalyst
 IT Ring opening polymerization catalysts
 (discrete yttrium complexes as catalysts for polymn. of lactide)
 IT Polyesters, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (discrete yttrium complexes as catalysts for polymn. of lactide)
 IT Crystal structure
 Molecular structure
 (of yttrium tris(hydroxyalkyl)triazacyclononane dinuclear complex polymn. catalyst)
 IT 223719-22-0P 223719-23-1P 223719-25-3P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (catalysts; prepn. and crystal and mol. structure as catalyst for polymn. of lactide)
 IT 223719-24-2P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (catalysts; prepn. and mol. structure as catalyst for polymn. of lactide)

IT 26023-30-3P, DL-Lactide homopolymer, sru 26680-10-4P, DL-Lactide homopolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (discrete yttrium complexes as catalysts for polymn. of lactide)

IT 106610-88-2P 151750-90-2P 191788-23-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and characterization and complexation with yttrium)

IT 223719-27-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)

IT 4730-54-5, 1,4,7-Triazacyclononane
 RL: RCT (Reactant)
 (reaction with alkylene oxide)

IT 558-30-5, Isobutylene oxide 16088-62-3, S-Propylene oxide, reactions 82378-47-0, 2R-2-Isopropylloxirane
 RL: RCT (Reactant)
 (reaction with triazacyclononane)

RE.CNT 26

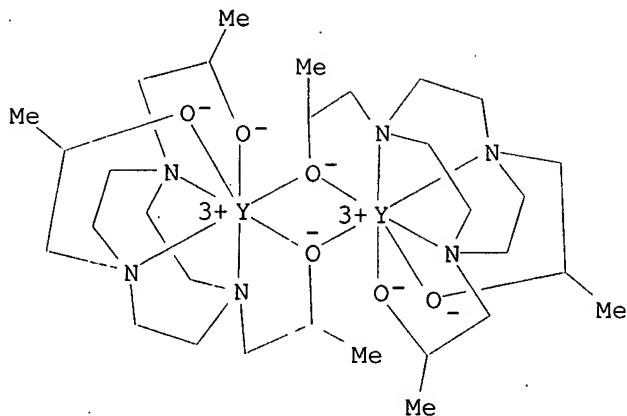
RE

- (1) Baran, J; Macromol Rapid Commun 1997, V18, P325 HCPLUS
- (2) Belal, A; Inorg Chem 1991, V30, P4397 HCPLUS
- (3) Belal, A; J Chem Soc Chem Commun 1991, P402 HCPLUS
- (4) Belal, A; J Chem Soc Dalton Trans 1989, P931 HCPLUS
- (5) Fallis, I; J Chem Soc Dalton Trans 1993, P2759 HCPLUS
- (6) Farrugia, L; Acta Crystallorg 1991, VC47, P1312 HCPLUS
- (7) Farrugia, L; Inorg Chem 1993, V32, P779
- (8) Farrugia, L; J Polyhedron 1995, V14, P541 HCPLUS
- (9) Huskens, J; J Chem Soc Chem Commun 1997, P845 HCPLUS
- (10) Le Borgne, A; Macromol Rapid Commun 1995, V196, P955
- (11) McLain, S; Polym Prepr (Am Chem Soc Div Polym Chem) 1992, V2, P463
- (12) Muller, H; Angew Chem Int Ed Engl 1993, V32, P477
- (13) Neuwenhuis, J; Clin Mater 1992, V10, P59
- (14) Penczek, S; Macromol Symp 1998, V128, P241 HCPLUS
- (15) Robb, J; Inorg Chim Acta 1986, V121, P115 HCPLUS
- (16) Simic, V; Macromolecules 1997, V30, P7338 HCPLUS
- (17) Spassky, N; Macromol Chem Phys 1996, V197, P2627 HCPLUS
- (18) Stevels, W; Macromol Chem Phys 1995, V196, P1153 HCPLUS
- (19) Stevels, W; Macromolecules 1996, V29, P3332 HCPLUS
- (20) Stevels, W; Macromolecules 1996, V29, P6132 HCPLUS
- (21) Thakur, K; Macromolecules 1997, V30, P2422 HCPLUS
- (22) Trofimoff, L; Chem Lett Chem Soc Jpn 1987, P991 HCPLUS
- (23) Vert, M; J Mater Sci Pure Appl Chem 1995, V A32, P787 HCPLUS
- (24) Vert, M; Makromol Chem Symp 1986, V6, P109 HCPLUS
- (25) Wainwright, K; Coord Chem Rev 1997, V166, P35 HCPLUS
- (26) Yasuda, H; Macromolecules 1992, V25, P5115 HCPLUS

IT 223719-22-0P 223719-23-1P 223719-25-3P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (catalysts; prepn. and crystal and mol. structure as catalyst for polymn. of lactide)

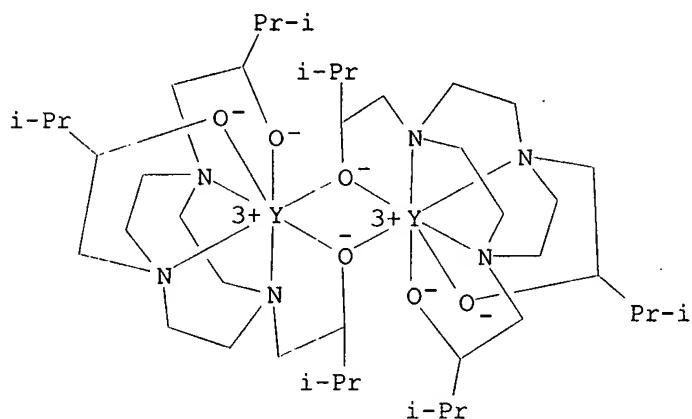
RN 223719-22-0 HCPLUS

CN Yttrium, bis[.mu.-[hexahydro-.alpha.,.alpha.'-.alpha.''-trimethyl-1H-1,4,7-triazone-1,4,7-triethanolato(3-)-.kappa.N1,.kappa.N4,.kappa.N7,.kappa.O1,.kappa.O4,.kappa.O7:.kappa.O1]]di- (9CI) (CA INDEX NAME)



RN 223719-23-1 HCAPLUS

CN Yttrium, bis[.mu.-[hexahydro-.alpha.,.alpha.',.alpha.''-.tris(1-methylethyl)-1H-1,4,7-triazonine-1,4,7-triethanolato(3-)-.kappa.N1,.kappa.N4,.kappa.N7,.kappa.O1,.kappa.O4,.kappa.O7:.kappa.O1]]di- (9CI) (CA INDEX NAME)



RN 223719-25-3 HCAPLUS

CN Yttrium, diaquaabis[.mu.-[hexahydro-.alpha.,.alpha.',.alpha.',.alpha.''-.alpha.''-.hexamethyl-1H-1,4,7-triazonine-1,4,7-triethanolato(3-)-.kappa.N1,.kappa.N4,.kappa.N7,.kappa.O1,.kappa.O4,.kappa.O7:.kappa.O1]]di-, compd. with methylbenzene (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 223719-24-2

CMF C36 H76 N6 O8 Y2

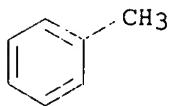
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

CRN 108-88-3

CMF C7 H8



IT 223719-24-2P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(catalysts; prepn. and mol. structure as catalyst for polymn. of lactide)

RN 223719-24-2 HCAPLUS

CN Yttrium, diaquabis(.mu.-[hexahydro-.alpha.,.alpha.,.alpha.',.alpha.',.alpha.'',.alpha.''-hexamethyl-1H-1,4,7-triaazonine-1,4,7-triethanolato(3-)-.kappa.N1,.kappa.N4,.kappa.N7,.kappa.O1,.kappa.O4,.kappa.O7:.kappa.O1]di-(9CI) (CA INDEX NAME)

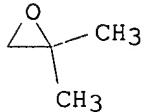
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 558-30-5, Isobutylene oxide 16088-62-3, S-Propylene oxide, reactions 82378-47-0, 2R-2-Isopropylloxirane

RL: RCT (Reactant)
(reaction with triazacyclononane)

RN 558-30-5 HCAPLUS

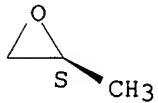
CN Oxirane, 2,2-dimethyl- (9CI) (CA INDEX NAME)



RN 16088-62-3 HCAPLUS

CN Oxirane, methyl-, (2S)- (9CI) (CA INDEX NAME)

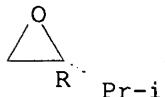
Absolute stereochemistry. Rotation (-).



RN 82378-47-0 HCAPLUS

CN Oxirane, (1-methylethyl)-, (2R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



L28 ANSWER 12 OF 38 HCAPLUS COPYRIGHT 2001 ACS

AN 1998:501195 HCAPLUS

DN 129:161991

TI Manufacture of **polyether** polyols

IN Hofmann, Jorg; Gupta, Pramod; Pielartzik, Harald
 PA Bayer A.-G., Germany
 SO Eur. Pat. Appl., 11 pp.
 CODEN: EPXXDW

DT Patent

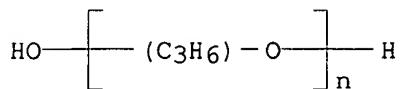
LA German

IC ICM C08G065-28

CC 35-7 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 855417	A1	19980729	EP 1998-100508	19980114
	EP 855417	B1	20000628		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
	DE 19702787	A1	19980730	DE 1997-19702787	19970127
	ES 2149620	T3	20001101	ES 1998-100508	19980114
	US 6093793	A	20000725	US 1998-8986	19980120
	CA 2227834	AA	19980727	CA 1998-2227834	19980122
	JP 10212348	A2	19980811	JP 1998-26312	19980126
	BR 9800458	A	19990706	BR 1998-458	19980126
PRAI	DE 1997-19702787	A	19970127		
AB	The polyols are prep'd. by acid-catalyzed polyaddn. of alkylene oxides to active-H compds. in the presence of a Group IIIB metal perfluoroalkylsulfonate at 40-200.degree., optionally in an inert org. solvent. The catalyst is easily sepd. from the reaction mixt. for recycle. Thus, 24.1 g propylene oxide was polymd. on 1.58 g propylene glycol in the presence of 37 mg Y(O3SCF3)3 at 90.degree. to give a polyol with no.-av. mol. wt. 1086. The catalyst pptd. upon addn. of 50 mL hexane at room temp., was filtered off, and the hexane was removed by distn.				
ST	yttrium triflate catalyst propylene oxide polymn; polyoxyalkylene polyol manuf; polypropylene glycol manuf acid catalyst				
IT	Polyoxyalkylenes, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (manuf. of polyether polyols)				
IT	Ring opening polymerization catalysts (rare earth metal triflates; manuf. of polyether polyols)				
IT	25322-69-4P, Polypropylene glycol RL: IMF (Industrial manufacture); PREP (Preparation) (manuf. of polyether polyols)				
IT	52093-26-2, Lanthanum triflate 52093-29-5, Gadolinium triflate 54761-04-5, Ytterbium triflate 126857-69-0, Lutetium triflate RL: CAT (Catalyst use); USES (Uses) (polymn. catalyst; manuf. of polyether polyols)				
IT	52093-30-8, Yttrium triflate RL: CAT (Catalyst use); REM (Removal or disposal); PROC (Process); USES (Uses) (polymn. catalyst; manuf. of polyether polyols)				
IT	25322-69-4P, Polypropylene glycol RL: IMF (Industrial manufacture); PREP (Preparation) (manuf. of polyether polyols)				
RN	25322-69-4 HCPLUS				
CN	Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy- (9CI) (CA INDEX NAME)				

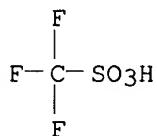


IT 52093-26-2, Lanthanum triflate 52093-29-5, Gadolinium triflate 54761-04-5, Ytterbium triflate 126857-69-0, Lutetium triflate

RL: CAT (Catalyst use); USES (Uses)
(polymn. catalyst; manuf. of polyether polyols)

RN 52093-26-2 HCPLUS

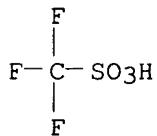
CN Methanesulfonic acid, trifluoro-, lanthanum(3+) salt (9CI) (CA INDEX NAME)



●1/3 La(III)

RN 52093-29-5 HCPLUS

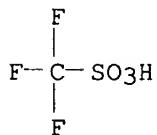
CN Methanesulfonic acid, trifluoro-, gadolinium(3+) salt (9CI) (CA INDEX NAME)



1/3 Gd(III)

RN 54761-04-5 HCPLUS

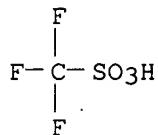
CN Methanesulfonic acid, trifluoro-, ytterbium(3+) salt (9CI) (CA INDEX NAME)



1/3 Yb(III)

RN 126857-69-0 HCPLUS

CN Methanesulfonic acid, trifluoro-, lutetium(3+) salt (9CI) (CA INDEX NAME)

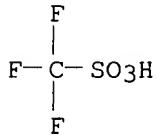


1/3 Lu(III)

IT 52093-30-8, Yttrium triflate
 RL: CAT (Catalyst use); REM (Removal or disposal); PROC
 (Process); USES (Uses)
 (polymn. catalyst; manuf. of polyether polyols)

RN 52093-30-8 HCAPLUS

CN Methanesulfonic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

L28 ANSWER 13 OF 38 HCAPLUS COPYRIGHT 2001 ACS

AN 1997:351716 HCAPLUS

DN 127:34551

TI Random copolymerization of .epsilon.-caprolactone and trimethylene carbonate with rare earth catalysts

AU Shen, Youqing; Shen, Zhiqian; Zhang, Yifeng; Huang, Qiaohong; Shen, Lianfang; Yuan, Hanzhen

CS Dep. Polymer Sci. and Eng., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China

SO J. Appl. Polym. Sci. (1997), 64(11), 2131-2139

CODEN: JAPNAB; ISSN: 0021-8995

PB Wiley

DT Journal

LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB Random copolymn. of trimethylene carbonate (TMC) with .epsilon.-caprolactone (CL) catalyzed by rare earth chloride-**epoxide** or rare earth isopropoxide was investigated. In the presence of **epoxide**, rare earth chlorides have high activities for the copolymn., giving high-mol.-wt. random copolymer with a narrow mol. wt. distribution. Light rare earth chlorides are more effective than heavy rare earth chlorides. For the rare earth chloride-**epoxide** catalyst system, **epoxide** is the requisite component, and its amt. affects the catalytic activity; while rare earth isopropoxide can catalyze the copolymn. alone. The reactivity ratios of CL and TMC were detd. by the Fineman-Ross method. The copolymers were characterized by

1H- and 13C-NMR, GPC, and DSC. The mechanism is discussed.

ST trimethylene carbonate caprolactone copolymer; rare earth catalyst caprolactone copolymer; kinetics trimethylene carbonate caprolactone copolymer; mechanism trimethylene carbonate caprolactone copolymer

IT Ring opening polymerization

Ring opening polymerization catalysts
(mechanism of caprolactone-trimethylene carbonate random copolymer using rare earth metal catalysts)

IT Reactivity ratio in polymerization
(of caprolactone with trimethylene carbonate using rare earth metal catalysts)

IT Polyesters, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
(polycarbonate-; prepn. of caprolactone-trimethylene carbonate copolymer using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

IT Polycarbonates, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)
(polyester-; prepn. of caprolactone-trimethylene carbonate copolymer using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

IT 75-21-8, Oxirane, uses 75-56-9, uses
106-89-8, uses 6742-68-3, Dysprosium isopropoxide
10024-93-8, Neodymium chloride 10025-74-8, Dysprosium chloride
10025-76-0, Europium chloride 10099-58-8, Lanthanum chloride
10138-41-7, Erbium chloride 10138-52-0, Gadolinium chloride
10361-91-8, Ytterbium chloride 14532-05-9, Gadolinium isopropoxide 19236-15-8, Neodymium isopropoxide
19446-52-7, Lanthanum isopropoxide
RL: CAT (Catalyst use); USES (Uses)
(caprolactone-trimethylene carbonate random copolymer. using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

IT 96-48-0, .gamma.-Butyrolactone

RL: CAT (Catalyst use); USES (Uses)
(in caprolactone-trimethylene carbonate random copolymer. using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

IT 502-44-3, 2-Oxepanone 2453-03-4, Trimethylene carbonate

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process)
(mechanism and reactivity ratios in caprolactone-trimethylene carbonate random copolymer. using rare earth metal catalysts)

IT 116828-94-5P, .epsilon.-Caprolactone-trimethylene carbonate copolymer

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

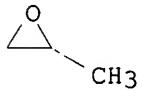
IT 75-21-8, Oxirane, uses 75-56-9, uses
106-89-8, uses 6742-68-3, Dysprosium isopropoxide
14532-05-9, Gadolinium isopropoxide 19236-15-8,
Neodymium isopropoxide 19446-52-7, Lanthanum isopropoxide
RL: CAT (Catalyst use); USES (Uses)
(caprolactone-trimethylene carbonate random copolymer. using rare earth metal chloride/epoxide or rare earth metal isopropoxide catalysts)

RN 75-21-8 HCPLUS

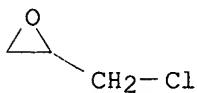
CN Oxirane (9CI) (CA INDEX NAME)



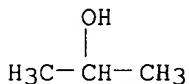
RN 75-56-9 HCAPLUS
 CN Oxirane, methyl- (9CI) (CA INDEX NAME)



RN 106-89-8 HCAPLUS
 CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)

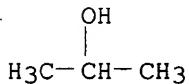


RN 6742-68-3 HCAPLUS
 CN 2-Propanol, dysprosium(3+) salt (9CI) (CA INDEX NAME)



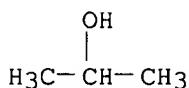
1/3 Dy(III)

RN 14532-05-9 HCAPLUS
 CN 2-Propanol, gadolinium(3+) salt (9CI) (CA INDEX NAME)



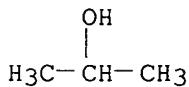
1/3 Gd(III)

RN 19236-15-8 HCAPLUS
 CN 2-Propanol, neodymium(3+) salt (9CI) (CA INDEX NAME)



1/3 Nd(III)

RN 19446-52-7 HCAPLUS
 CN 2-Propanol, lanthanum(3+) salt (9CI) (CA INDEX NAME)



1/3 La(III)

L28 ANSWER 14 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1997:55549 HCAPLUS
 DN 126:90073
 TI Copolymerization of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts
 AU Sun, Wei-Lin; Shen, Zhi-Quan; Li, Wei-Shi; Zhang, Yi-Feng
 CS Dep. Polymer Sci. Eng., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Gaodeng Xuexiao Huaxue Xuebao (1996), 17(10), 1638-1643
 CODEN: KTHPDM; ISSN: 0251-0790
 PB Gaodeng Jiaoyu Chubanshe
 DT Journal
 LA Chinese
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35
 AB Chloromethylthiirane (CMT) with epichlorohydrin (ECH) was copolymerd. using rare earth coordination catalysts for the first time. The rare earth coordination catalysts, esp. Nd(acac)₃-Al(i-Bu)₃ and Nd(naph)₃-Al(i-Bu)₃ are highly active, giving rather high-mol.-wt. ([.eta.] = 0.16 dL/g) alternate-rich copolymer in fairly high yield (60%), and the catalytic efficiency of Nd(acac)₃-Al(i-Bu)₃ reached 10,000 g copolymer/mol Nd. Characteristics of the copolyrn. with Na(acac)₃-Al(i-Bu)₃ had been studied in detail. The reactivity ratio of CMT (1) and ECH (2) was obtained to be 0.22 (r1) and 0.097(r2) from the sulfur contents of the copolymers detd. by oxygen combustion method. The structure and the mol. wt. of copolymer were characterized by IR, ¹³C-NMR, GPC and VPO.
 ST chloromethylthiirane epichlorohydrin polymn rare earth catalyst; tributylaluminum neodymium acetylacetone catalyst **ring opening**; naphthalenate neodymium catalyst **ring opening**; reactivity ratio polymn chloromethylthiirane epichlorohydrin
 IT Naphthenic acids, uses
 RL: CAT (Catalyst use); USES (Uses)
 (neodymium salts; prepn. and characterization of chloromethylthiirane-epichlorohydrin copolymer by rare earth coordination catalysts)
 IT **Ring opening** polymerization
 (prep. and characterization of chloromethylthiirane-epichlorohydrin

copolymer by rare earth coordination catalysts)

IT Ring opening polymerization catalysts
(reactivity ratio in copolymn. of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts)

IT Reactivity ratio in polymerization
(ring-opening; reactivity ratio in copolymn. of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts)

IT Polymer chains
(structure; reactivity ratio in copolymn. of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts)

IT 7732-18-5, Water, uses 15554-47-9
RL: NUU (Nonbiological use, unclassified); USES (Uses)
(effects on copolymn. of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts)

IT 1116-70-7, Tributylaluminum 14589-38-9 35656-11-2
38326-06-6 79321-05-4 101135-91-5
RL: CAT (Catalyst use); USES (Uses)
(prepn. and characterization of chloromethylthiirane-epichlorohydrin copolymer by rare earth coordination catalysts)

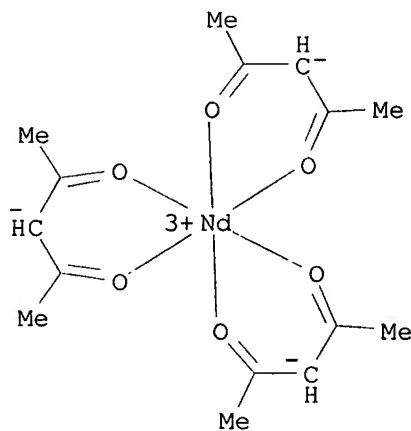
IT 54335-37-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and characterization of chloromethylthiirane-epichlorohydrin copolymer by rare earth coordination catalysts)

IT 106-89-8, reactions 3221-15-6, Chloromethylthiirane
RL: RCT (Reactant)
(reactivity ratio in copolymn. of chloromethylthiirane with epichlorohydrin by rare earth coordination catalysts)

IT 14589-38-9 35656-11-2 38326-06-6
79321-05-4 101135-91-5
RL: CAT (Catalyst use); USES (Uses)
(prepn. and characterization of chloromethylthiirane-epichlorohydrin copolymer by rare earth coordination catalysts)

RN 14589-38-9 HCPLUS

CN Neodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

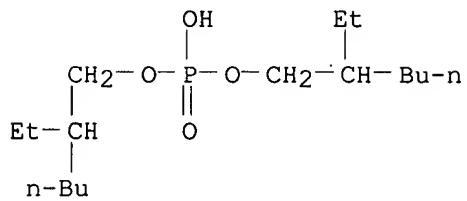


RN 35656-11-2 HCPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt, homopolymer (9CI) (CA INDEX NAME)

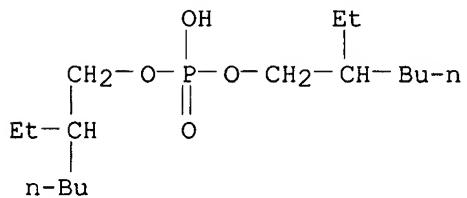
CM 1

CRN 38326-04-4
 CMF C16 H35 O4 P . 1/3 Nd



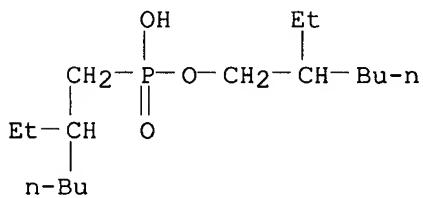
● 1/3 Nd(III)

RN 38326-06-6 HCPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



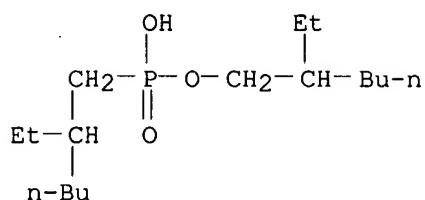
● 1/3 Y(III)

RN 79321-05-4 HCPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Nd(III)

RN 101135-91-5 HCPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Y(III)

IT 54335-37-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and characterization of chloromethylthiirane-epichlorohydrin
 copolymer by rare earth coordination catalysts)

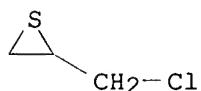
RN 54335-37-4 HCAPLUS

CN Oxirane, (chloromethyl)-, polymer with (chloromethyl)thiirane (9CI) (CA INDEX NAME)

CM 1

CRN 3221-15-6

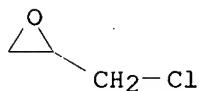
CMF C3 H5 Cl S



CM 2

CRN 106-89-8

CMF C3 H5 Cl O



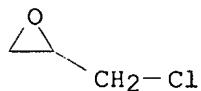
IT 106-89-8, reactions

RL: RCT (Reactant)

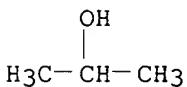
(reactivity ratio in copolymer. of chloromethylthiirane with
 epichlorohydrin by rare earth coordination catalysts)

RN 106-89-8 HCAPLUS

CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)



AN 1996:701186 HCAPLUS
 DN 126:8935
 TI Polymerization of ethylene oxide using yttrium isopropoxide
 AU Choi, Young K.; Stevels, Willem M.; Ankone, Marc J. K.; Dijkstra, Pieter J.; Kim, Sung W.; Feijen, Jan
 CS Department Chemical Technology, University Twente, Enschede, 7500 AE, Neth.
 SO Macromol. Chem. Phys. (1996), 197(11), 3623-3629
 CODEN: MCHPES; ISSN: 1022-1352
 PB Huethig & Wepf
 DT Journal
 LA English
 CC 37-3 (Plastics Manufacture and Processing)
 AB Well defined poly(ethylene oxides) were prepd. using yttrium isopropoxide as an initiator. End group anal. using ^1H - and ^{13}C NMR spectroscopy revealed that only polymers with iso-Pr ether and hydroxyl end groups were produced. The mol. wt. is controlled by the initial amt. of initiator added and low polydispersity polymer ($\text{hivin.Mw}/\text{hivin.Mn}$ apprxeq. 1.1) was isolated. Sequential polymn. indicated the suitability of this initiator for macromol. engineering.
 ST polymn ethylene oxide yttrium isopropoxide catalyst
 IT Ring opening polymerization
 Ring opening polymerization catalysts
 (polymer. of ethylene oxide using yttrium isopropoxide)
 IT 2172-12-5, Yttrium isopropoxide
 RL: CAT (Catalyst use); USES (Uses)
 (polymer. of ethylene oxide using)
 IT 32238-60-1P, Polyethylene glycol isopropyl ether
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (polymer. of ethylene oxide using yttrium isopropoxide)
 IT 2172-12-5, Yttrium isopropoxide
 RL: CAT (Catalyst use); USES (Uses)
 (polymer. of ethylene oxide using)
 RN 2172-12-5 HCAPLUS
 CN 2-Propanol, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

L28 ANSWER 16 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1996:431581 HCAPLUS
 DN 125:59381
 TI Polymerization of cyclic ethers using selected metal compound catalysts
 IN Drysdale, Neville Everton
 PA E.I. Du Pont De Nemours and Company, USA
 SO PCT Int. Appl., 25 pp.
 CODEN: PIXXD2
 DT Patent

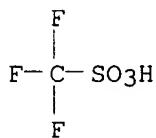
LA English
 IC ICM C08G065-10
 ICS C08G065-20

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67

FAN.CNT 2

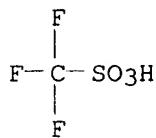
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9613540	A1	19960509	WO 1995-US13701	19951024
	W: AL, AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, JP, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, UZ, VN				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9538971	A1	19960523	AU 1995-38971	19951024
	EP 788525	A1	19970813	EP 1995-938289	19951024
	R: DE, ES, GB, NL				
	CN 1179786	A	19980422	CN 1995-195937	19951024
	JP 10508063	T2	19980804	JP 1995-514688	19951024
	EP 1046663	A2	20001025	EP 2000-202233	19951024
	EP 1046663	A3	20010912		
	R: DE, ES, FR, GB, NL				
PRAI	US 1994-331305	A	19941028		
	EP 1995-938289	A3	19951024		
	WO 1995-US13701	W	19951024		
OS	MARPAT 125:59381				
AB	Oxiranes, oxetanes, oxepanes, dioxolanes, trioxanes, and tetrahydrofuran are polymers. In the presence of a metal salt optionally complexed with a neutral ligand and an accelerator such as a vinyl ester or a phosphorous compd. These catalysts provide polyethers with sufficiently high no.-av. mol. wts. (Mn) for use usually in the diol form in manuf. of other polymers. Thus, polymers of THF in the presence of di-Et chlorophosphite and ytterbium triflate gave polymer with Mn 10,200.				
ST	cyclic ether polymer catalyst; ytterbium triflate catalyst THF polymer; chlorophosphite diethyl catalyst THF polymer; polyoxyalkylene manuf catalyst; THF polymer catalyst metal compd; trioxane polymer catalyst metal compd; dioxolane polymer catalyst metal compd; phosphorous compd polymer catalyst oxepane; vinyl ester polymer catalyst oxetane; metal compd polymer catalyst oxirane				
IT	Polyoxyalkylenes, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (polymers of cyclic ethers using selected metal compd. catalysts)				
IT	Esters, uses RL: CAT (Catalyst use); USES (Uses) (vinyl, cocatalysts; polymer of cyclic ethers using selected metal compd. catalysts)				
IT	Polymerization catalysts (ring-opening, polymer of cyclic ethers using selected metal compd. catalysts)				
IT	108-05-4, Vinyl acetate, uses 589-57-1, Diethyl chlorophosphite 940-71-6 1707-03-5, Diphenylphosphinic acid RL: CAT (Catalyst use); USES (Uses) (cocatalyst; polymer of cyclic ethers using selected metal compd. catalysts)				
IT	94-04-2, Vinyl 2-ethylhexanoate 34622-08-7, Neodymium triflate 52093-26-2, Lanthanum triflate 52093-30-8, Yttrium triflate 54761-04-5, Ytterbium triflate 62086-02-6 88189-03-1 89672-77-5 139177-62-1, Dysprosium triflate 139177-64-3, Erbium triflate				

RL: **CAT (Catalyst use); USES (Uses)**
 (polymn. of cyclic ethers using selected metal compd. catalysts)
 IT 24979-97-3P, THF homopolymer 25190-06-1P
 RL: **IMF (Industrial manufacture); PREP (Preparation)**
 (polymn. of cyclic ethers using selected metal compd. catalysts)
 IT 34622-08-7, Neodymium triflate 52093-26-2, Lanthanum
 triflate 52093-30-8, Yttrium triflate 54761-04-5,
 Ytterbium triflate 139177-62-1, Dysprosium triflate
 139177-64-3, Erbium triflate
 RL: **CAT (Catalyst use); USES (Uses)**
 (polymn. of cyclic ethers using selected metal compd. catalysts)
 RN 34622-08-7 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, neodymium(3+) salt (9CI) (CA INDEX
 NAME)



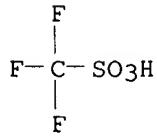
1/3 Nd(III)

RN 52093-26-2 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, lanthanum(3+) salt (9CI) (CA INDEX
 NAME)



1/3 La(III)

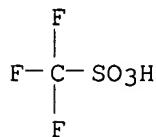
RN 52093-30-8 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

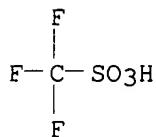
RN 54761-04-5 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, ytterbium(3+) salt (9CI) (CA INDEX

NAME)



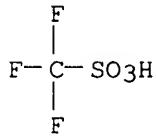
1/3 Yb(III)

RN 139177-62-1 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, dysprosium(3+) salt (9CI) (CA INDEX NAME)



1/3 Dy(III)

RN 139177-64-3 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, erbium(3+) salt (9CI) (CA INDEX NAME)



1/3 Er(III)

L28 ANSWER 17 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1996:195143 HCAPLUS
 DN 124:233228
 TI A Versatile and Highly Efficient Catalyst System for the Preparation of Polyesters Based on Lanthanide Tris(2,6-di-tert-butylphenolate)s and Various Alcohols
 AU Stevels, Willem M.; Ankone, Marc J. K.; Dijkstra, Pieter J.; Feijen, Jan
 CS Department of Chemical Technology, University of Twente, Enschede, 7500 AE, Neth.
 SO Macromolecules (1996), 29(9), 3332-3
 CODEN: MAMOBX; ISSN: 0024-9297
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)

AB The polymn. of L-lactide, .epsilon.-caprolactone and .delta.-valerolactone in the presence of lanthanide tris(2,6-di-tert-butylphenolate) and alcs. proceeds smoothly to the equil. conversion in dichloromethane to yield a narrow mol. wt. distribution polyester within minutes. The end group identity of the polymer prep. is solely detd. by the identity of the alc. added. Block copolymers can be prep'd. by sequential introduction of different monomers or by using a hydroxyl functionalized macroinitiator.

ST yttrium ditertbutylphenolate alc catalyst lactide polymn; lanthanum ditertbutylphenolate alc catalyst caprolactone polymn; valerolactone polymn yttrium ditertbutylphenolate alc catalyst; block polyester prepn yttrium phenolate catalyst; **ring opening** polymn yttrium phenolate catalyst

IT Alcohols, uses
 RL: CAT (Catalyst use); USES (Uses)
 (lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT Polyesters, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT Polyesters, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (block, lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT Polymerization catalysts
 (**ring-opening**, living; lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT 111821-20-6P, .epsilon.-Caprolactone-L-Lactide block copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (diblock; lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT 67-63-0, 2-Propanol, uses 71-36-3, Butanol, uses 75-65-0, tert-Butanol, uses 107-21-1, Ethylene glycol, uses 108-01-0, Dimethylaminoethanol 109-86-4, Methoxyethanol 113266-70-9, Yttrium tris(2,6-di-tert-butylphenolate) 121118-91-0, Lanthanum tris(2,6-di-tert-butylphenolate)
 RL: CAT (Catalyst use); USES (Uses)
 (lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

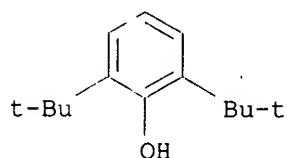
IT 24980-41-4P, .epsilon.-Caprolactone homopolymer 25248-42-4P, .epsilon.-Caprolactone homopolymer, sru 26161-42-2P, L-Lactide homopolymer, sru 26354-94-9P, .delta.-Valerolactone homopolymer 26499-05-8P, .delta.-Valerolactone homopolymer, sru 33135-50-1P, L-Lactide homopolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT 149479-29-8P, L-Lactide-**oxirane** block copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (triblock; lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

IT 113266-70-9, Yttrium tris(2,6-di-tert-butylphenolate)
 121118-91-0, Lanthanum tris(2,6-di-tert-butylphenolate)
 RL: CAT (Catalyst use); USES (Uses)
 (lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst system for the prepn. of polyesters)

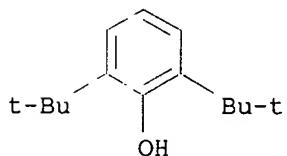
RN 113266-70-9 HCPLUS

CN Phenol, 2,6-bis(1,1-dimethylethyl)-, yttrium(3+) salt (9CI) (CA INDEX NAME)



1/3 Y(III)

RN 121118-91-0 HCAPLUS
 CN Phenol, 2,6-bis(1,1-dimethylethyl)-, lanthanum(3+) salt (9CI) (CA INDEX NAME)



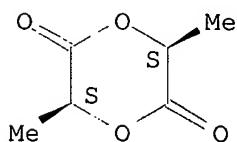
1/3 La(III)

IT 149479-29-8P, L-Lactide-oxirane block copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (triblock; lanthanide tris(2,6-di-tert-butylphenolate)-alc. catalyst
 system for the prepn. of polyesters)
 RN 149479-29-8 HCAPLUS
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with oxirane,
 block (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6
 CMF C6 H8 O4
 CDES 1:3S2:CIS

Absolute stereochemistry.

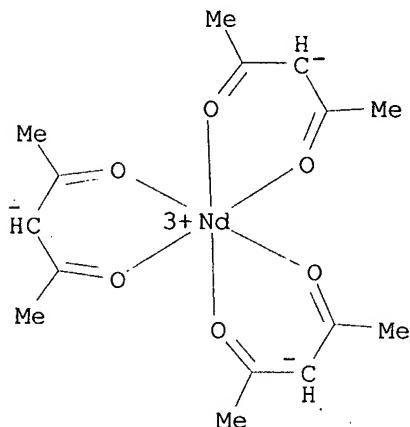


CM 2

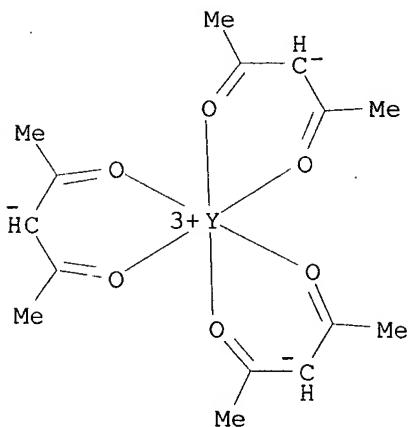
CRN 75-21-8
 CMF C2 H4 O

L28 ANSWER 18 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 1996:88143 HCAPLUS
DN 124:118109
TI Copolymerization of (chloromethyl)thiirane with propylene oxide by rare earth coordination catalysts
AU Sun, Wei-Lin; Shen, Zhi-Quan; Zhang, Yi-Feng
CS Dep. Polymer Sci. Eng., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
SO Gaodeng Xuexiao Huaxue Xuebao (1996), 17(1), 137-41
CODEN: KTHPDM; ISSN: 0251-0790
DT Journal
LA Chinese
CC 35-3 (Chemistry of Synthetic High Polymers)
AB Rare earth coordination catalysts, esp. Y(P2O4)3-Al(iso-Bu)3-H2O system, are effective catalysts for prep. high-mol.-wt. ([.eta.] about 1.0 dL/g) (chloromethyl)thiirane-propylene oxide copolymer in a high yield (50%). The catalytic efficiency of Y(P2O4)3-Al(iso-Bu)3-H2O system reached 6000 g/mol Y. The copolymer structure was characterized by IR, NMR, GPC. The reactivity ratio were obtained as r1 = 0.41 (chloromethylthiirane) and r2 = 1.37 (propylene oxide) resp.
ST polymn chloromethylthiirane propylene oxide; reactivity ratio polymn chloromethylthiirane propylene oxide; yttrium catalyst polymn chloromethylthiirane propylene oxide; neodymium catalyst polymn chloromethylthiirane propylene oxide
IT Solvent effect
(on copolymn. of (chloromethyl)thiirane with propylene oxide)
IT Naphthenic acids, uses
RL: CAT (Catalyst use); USES (Uses)
(neodymium salts, rare earth compd.-triisobutylaluminum-water system catalyst for polymn. of (chloromethyl)thiirane with propylene oxide)
IT Polymerization catalysts
(ring-opening, rare earth compd.-triisobutylaluminum-water system catalyst for polymn. of (chloromethyl)thiirane with propylene oxide)
IT Reactivity ratio in polymerization
(ring-opening, reactivity ratio in polymn. of (chloromethyl)thiirane with propylene oxide in presence of rare earth compd. catalysts)
IT 100-99-2, Triisobutylaluminum, uses 7440-00-8D, Neodymium, naphthenates 7732-18-5, Water, uses 14589-38-9, Neodymium tris(acetylacetone) 15554-47-9, Yttrium tris(acetylacetone) 38326-04-4 38326-06-6 79321-05-4 101135-91-5
RL: CAT (Catalyst use); USES (Uses)
(rare earth compd.-triisobutylaluminum-water system catalyst for polymn. of (chloromethyl)thiirane with propylene oxide)
IT 173324-64-6
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
(rare earth compd.-triisobutylaluminum-water system catalyst for polymn. of (chloromethyl)thiirane with propylene oxide)
IT 75-56-9, reactions 3221-15-6, (Chloromethyl)thiirane
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
(reactivity ratio in polymn. of (chloromethyl)thiirane with propylene

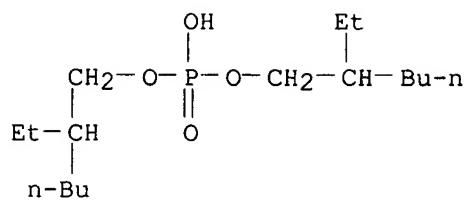
oxide in presence of rare earth compd. catalysts)
 IT 14589-38-9, Neodymium tris(acetylacetone) 15554-47-9,
 Yttrium tris(acetylacetone) 38326-04-4 38326-06-6
 79321-05-4 101135-91-5
 RL: CAT (Catalyst use); USES (Uses)
 (rare earth compd.-triisobutylaluminum-water system catalyst for
 polymn. of (chloromethyl)thiirane with propylene oxide)
 RN 14589-38-9 HCAPLUS
 CN Neodymium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)



RN 15554-47-9 HCAPLUS
 CN Yttrium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)

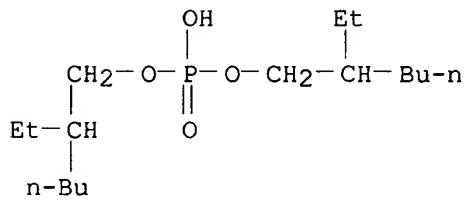


RN 38326-04-4 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA
 INDEX NAME)



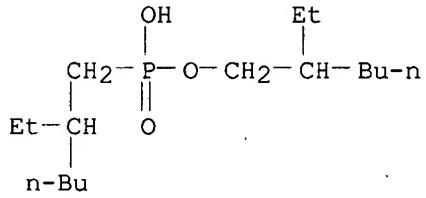
●1/3 Nd(III)

RN 38326-06-6 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



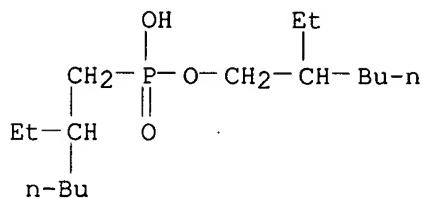
●1/3 Y(III)

RN 79321-05-4 HCAPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



●1/3 Nd(III)

RN 101135-91-5 HCAPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Y(III)

IT 173324-64-6

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
 (rare earth compd.-triisobutylaluminum-water system catalyst for
 polymn. of (chloromethyl)thiirane with propylene oxide)

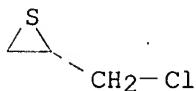
RN 173324-64-6 HCPLUS

CN Oxirane, methyl-, polymer with (chloromethyl)thiirane (9CI) (CA INDEX NAME)

CM 1

CRN 3221-15-6

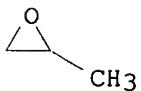
CMF C3 H5 Cl S



CM 2

CRN 75-56-9

CMF C3 H6 O

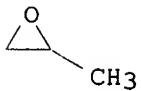


IT 75-56-9, reactions

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
 (reactivity ratio in polymn. of (chloromethyl)thiirane with propylene oxide in presence of rare earth compd. catalysts)

RN 75-56-9 HCPLUS

CN Oxirane, methyl- (9CI) (CA INDEX NAME)



L28 ANSWER 19 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:818605 HCAPLUS
 DN 123:229367
 TI Preparation of block **polyether**-polyesters from THF or 3-methyltetrahydrofuran and polycarboxylic acids in the presence of metal perfluorosulfonate catalysts
 IN Drysdale, Neville Everton; Citron, Joel David
 PA du Pont de Nemours, E. I., and Co., USA
 SO PCT Int. Appl., 28 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C08G063-42
 ICS C08G063-58; C08G063-685
 CC 35-5 (Chemistry of Synthetic High Polymers)
 FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9511267	A1	19950427	WO 1994-US11728	19941020
	W: BR, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 724606	A1	19960807	EP 1995-900999	19941020
	EP 724606	B1	20010816		
	R: DE, ES, FR, GB, IT, NL				
	JP 09504047	T2	19970422	JP 1994-512103	19941020
	BR 9407858	A	19970520	BR 1994-7858	19941020
	US 5541346	A	19960730	US 1995-424918	19950419
	US 5635585	A	19970603	US 1995-424675	19950419
	US 5770678	A	19980623	US 1996-762813	19961209
PRAI	US 1993-141160	A	19931021		
	US 1994-198024	A	19940217		
	US 1992-964313	B2	19921021		
	US 1993-21368	B2	19930223		
	US 1993-93119	B2	19930716		
	US 1993-93243	B2	19930716		
	US 1994-283108	A3	19940729		
	WO 1994-US11728	W	19941020		
	US 1995-424675	A1	19950419		
AB	Block polyether -polyesters derived from dicarboxylic acids (and derivs.) and THF (or a THF deriv.) are prep'd. with a repeating unit of general structure $[(CHR1CR2R3CR2R3CHR4)nC(:O)AC(:O)O]$, in which R1-R4 are, independently, H or C1-20-hydrocarbyl, n >1, A is hydrocarbylene or substituted hydrocarbylene contg. imide, amide, urea, and urethane functional groups, and A is bound to an ester group through a carbon atom. More specifically, the repeating unit is of general formula $[R6-E-C(:O)NH-R7-NHC(:O)-E-[R8-E-C(:O)-NH-R7-NHN(:O)-E-]m-R6-]$, in which R6-8 are c2-25-hydrocarbyl, E is O or NR10 (R10 = H or C1-20-hydrocarbyl, and m = 0-10). Preferably, the tetrahydrofurans used are THF and 3-methyltetrahydrofuran. The polymers are prep'd. in the presence of metal perfluoroalkylsulfonate catalysts of general formula MZsQt, in which M is a metal, Z is a R5OSO2- (R = C1-12-perfluoroalkyl), and s = 1-6, depending on the metal. Several polymers, some of which are novel, were prep'd. and were useful as thermoplastic elastomers, spandex fibers, or urethane rubber.				
ST	polyether polyester THF dicarboxylic acid; perfluoroalkanesulfonate THF polyether polyester				
IT	Sulfonates RL: CAT (Catalyst use); USES (Uses) (C1-12-perfluoroalkane; prep'n. of block polyether -polyesters				

from THF or 3-methyltetrahydrofuran and polycarboxylic acids)

IT Sulfonic acids, uses
 RL: CAT (Catalyst use); USES (Uses)
 (perfluoro-C1-12-alkane, rare earth metal salts; for prepn. of block
polyether-polyesters from THF or 3-methyltetrahydrofuran and
 polycarboxylic acids)

IT Polymerization catalysts
 (block, **ring-opening**, metal perfluorosulfonates;
 prepn. of block **polyether**-polyesters from THF or
 3-methyltetrahydrofuran and polycarboxylic acids)

IT **Polyethers**, preparation
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (polyamide-, block, prepn. of **polyether**-polyesters from THF
 or 3-methyltetrahydrofuran and polycarboxylic acids)

IT **Polyethers**, preparation
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (polyester-, block, prepn. of **polyether**-polyesters from THF
 or 3-methyltetrahydrofuran and polycarboxylic acids)

IT Urethane polymers, preparation
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (**polyether**-, block; prepn. of **polyether**-polyesters
 from THF or 3-methyltetrahydrofuran and polycarboxylic acids)

IT Polyamides, preparation
 Polyesters, preparation
 Polyimides, preparation
 Polyureas
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (**polyether**-, block, * or 3-methyltetrahydrofuran
 and polycarboxylic acids) **Polyesters**, preparation RTPolyimides,
 preparation IROL

IT **Polyethers**, preparation
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (polyimide-, block, prepn. of **polyether**-polyesters from THF
 or 3-methyltetrahydrofuran and polycarboxylic acids)

IT **Polyethers**, preparation
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (polyurea-, block, prepn. of **polyether**-polyesters from THF or
 3-methyltetrahydrofuran and polycarboxylic acids)

IT 7429-90-5D, Aluminum, perfluoroalkanesulfonates 7439-88-5D, Iridium,
 perfluoroalkanesulfonates 7439-89-6D, Iron, perfluoroalkanesulfonates
 7439-92-1D, Lead, perfluoroalkanesulfonates 7439-97-6D, Mercury,
 perfluoroalkanesulfonates 7439-98-7D, Molybdenum,
 perfluoroalkanesulfonates 7440-03-1D, Niobium, perfluoroalkanesulfonates
 7440-04-2D, Osmium, perfluoroalkanesulfonates 7440-05-3D, Palladium,
 perfluoroalkanesulfonates 7440-06-4D, Platinum,
 perfluoroalkanesulfonates 7440-15-5D, Rhenium, perfluoroalkanesulfonates
 7440-16-6D, Rhodium, perfluoroalkanesulfonates 7440-18-8D, Ruthenium,
 perfluoroalkanesulfonates 7440-20-2D, Scandium,
 perfluoroalkanesulfonates 7440-22-4D, Silver, perfluoroalkanesulfonates
 7440-24-6D, Strontium, perfluoroalkanesulfonates 7440-25-7D, Tantalum,
 perfluoroalkanesulfonates 7440-30-4D, Thulium, perfluoroalkanesulfonates
 7440-31-5D, Tin, perfluoroalkanesulfonates 7440-32-6D, Titanium,
 perfluoroalkanesulfonates 7440-33-7D, Tungsten,
 perfluoroalkanesulfonates 7440-36-0D, Antimony,

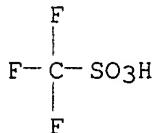
perfluoroalkanesulfonates 7440-38-2D, Arsenic, perfluoroalkanesulfonates 7440-39-3D, Barium, perfluoroalkanesulfonates 7440-43-9D, Cadmium, perfluoroalkanesulfonates 7440-47-3D, Chromium, perfluoroalkanesulfonates 7440-48-4D, Cobalt, perfluoroalkanesulfonates 7440-55-3D, Gallium, perfluoroalkanesulfonates 7440-56-4D, Germanium, perfluoroalkanesulfonates 7440-57-5D, Gold, perfluoroalkanesulfonates 7440-58-6D, Hafnium, perfluoroalkanesulfonates 7440-62-2D, Vanadium, perfluoroalkanesulfonates 7440-65-5D, Yttrium, perfluoroalkanesulfonates 7440-66-6D, Zinc, perfluoroalkanesulfonates 7440-67-7D, Zirconium, perfluoroalkanesulfonates 7440-69-9D, Bismuth, perfluoroalkanesulfonates 7440-74-6D, Indium, perfluoroalkanesulfonates 54761-04-5, Ytterbium triflate
 RL: **CAT (Catalyst use); USES (Uses)**
 (for prepn. of block **polyether**-polyesters from THF or
 3-methyltetrahydrofuran and polycarboxylic acids)

IT 168197-84-0P 168197-87-3P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. and polymn. of)

IT 109-99-9DP, block **polyether**-polyesters 13423-15-9DP, block
polyether-polyesters 168197-74-8P 168197-75-9P 168197-76-0P
 168197-77-1P 168197-79-3P 168197-80-6P 168197-81-7P 168197-82-8P
 168197-83-9P 168197-85-1P 168197-86-2P 168197-88-4P 168471-72-5P
 168471-73-6P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. of block **polyether**-polyesters from THF or
 3-methyltetrahydrofuran and polycarboxylic acids)

IT 54761-04-5, Ytterbium triflate
 RL: **CAT (Catalyst use); USES (Uses)**
 (for prepn. of block **polyether**-polyesters from THF or
 3-methyltetrahydrofuran and polycarboxylic acids)

RN 54761-04-5 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, ytterbium(3+) salt (9CI) (CA INDEX
 NAME)

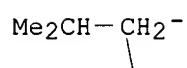


1/3 Yb(III)

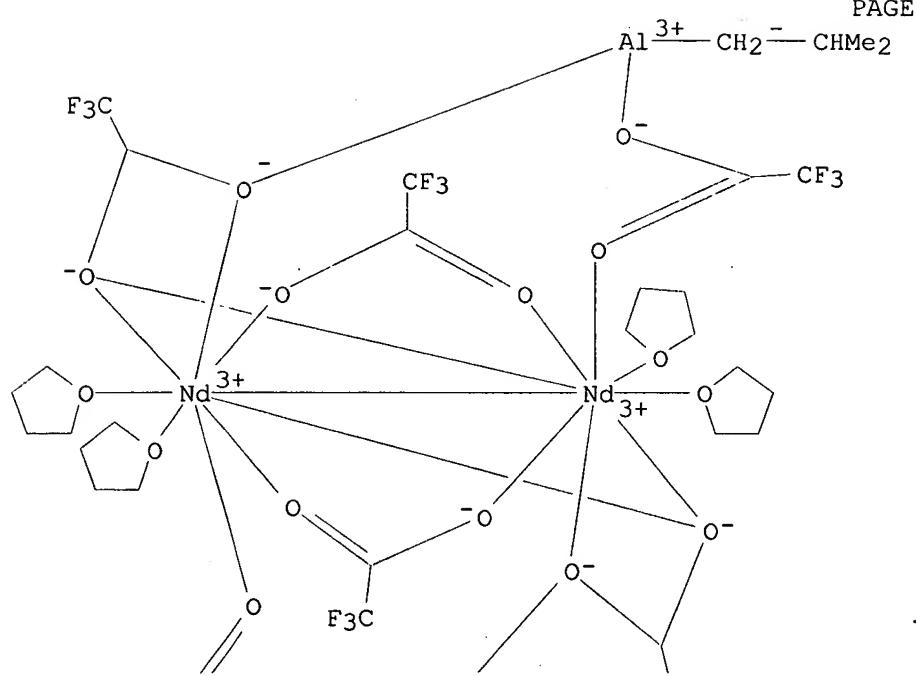
L28 ANSWER 20 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:786073 HCAPLUS
 DN 123:199492
 TI Syntheses and characterization of [(μ -CF₃CO₂)₂Ln(μ -CF₃CHO₂)AlR₂.2THF]₂ and their catalytic activities for polymerization of some polar monomers
 AU Jin, Ying-Tai; Li, Feng-Fu; Lin, Yong-Hua; Pei, Feng-Kui; Wang, Fo-Song; Ren, Ji-Min; Sun, Yu-Fang
 CS Changchun Inst. Appl. Chem., Chinese Acad. Sci., Changchun, 130022, Peop. Rep. China

SO Huaxue Xuebao (1995), 53(7), 702-9
 CODEN: HHHPA4; ISSN: 0567-7351
 DT Journal
 LA Chinese
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB Three new bimetallic complexes were prepd. and crystd. by reactions of $(CF_3CO_2)_3Ln$ with R_1AlR_2 ($Ln = Nd$ and Y , $R_1 = H$, $R = iso-C_4H_9$; $Ln = Eu$, $R = R_1 = C_2H_5$) in THF soln., and their crystal structures were detd. by X-ray diffraction method. The structures and the questions on valence state and noncoplanarity in the structures were confirmed and cracked by means of 1H NMR and ^{13}C NMR spectra, esp. by $^{13}C-^1H$ COSY 2D NMR technique. A general formula of mols. of the three rare earth complexes was defined as follows: $[(.mu.-CF_3CO_2)_2Ln(.mu.-CF_3CHO_2)AlR_2.2THF]_2$. A mechanism on the formation of the new complexes was also proposed through the following five steps: alkylating, β -elimination (or hydrogenation), hydrogen transfer, linkage and assocn. Both Y-Al and Eu-Al complexes function as a catalyst in polymn. of Me methacrylate (I) and epichlorohydrin (II). The polymer obtained from I monomer is mainly syndiotactic chain structure and the polymn. of II shows higher catalytic activity. The Y-Al complex also capable of **ring-opening** polymn. of THF in case of adding a small amt. of II and an oxonium ion mechanism of THF polymn. was suggested from the anal. of THF polymer terminal.
 ST neodymium aluminum polymn catalyst; yttrium aluminum polymn catalyst; europium aluminum polymn catalyst; PMMA prepn catalyst lanthanide; polyepichlorohydrin prepn catalyst lanthanide; polytetrahydrofuran prepn catalyst lanthanide
 IT Polymerization catalysts
 (prepn. and characterization of neodymium-, europium- and yttrium-aluminum and their catalytic activities for polymn. of some polar monomers)
 IT Polyoxalkylenes, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and characterization of neodymium-, europium- and yttrium-aluminum and their catalytic activities for polymn. of some polar monomers)
 IT 168068-97-1P 168068-98-2P 168068-99-3P
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (prepn. and characterization of neodymium-, europium- and yttrium-aluminum and their catalytic activities for polymn. of some polar monomers)
 IT 9011-14-7P, PMMA 24969-06-0P, Epichlorohydrin homopolymer
 24979-97-3P, THF homopolymer 25190-06-1P 61710-61-0P, Epichlorohydrin homopolymer, sru
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and characterization of neodymium-, europium- and yttrium-aluminum and their catalytic activities for polymn. of some polar monomers)
 IT 168068-97-1P 168068-98-2P 168068-99-3P
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (prepn. and characterization of neodymium-, europium- and yttrium-aluminum and their catalytic activities for polymn. of some polar monomers)
 RN 168068-97-1 HCAPLUS
 CN Neodymium, bis[bis(2-methylpropyl)aluminum]tetrakis(tetrahydrofuran)tetrakis[.mu.-(trifluoroacetato-.kappa.O:.kappa.O')]bis[.mu.3-[2,2,2-trifluoro-1,1-ethanediolato(2-)-.kappa.O:.kappa.O,.kappa.O':.kappa.O']]di-, (Nd-Nd) (9CI) (CA INDEX NAME)

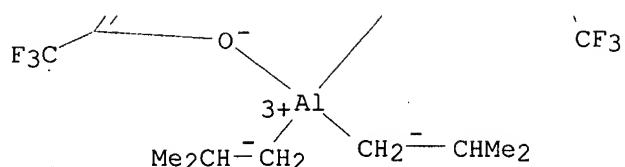
PAGE 1-A



PAGE 2-A



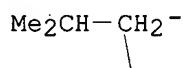
PAGE 3-A



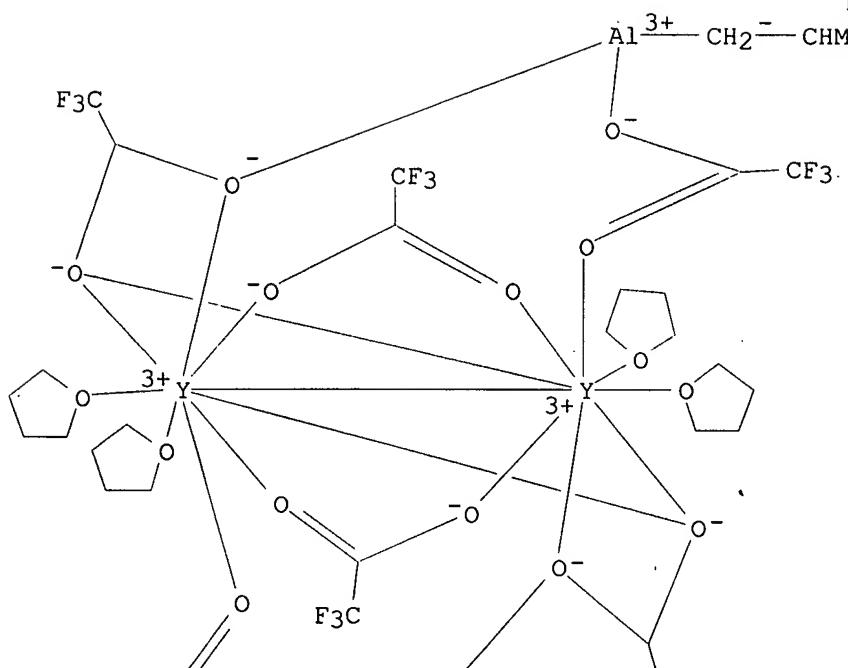
RN 168068-98-2 HCAPLUS

CN Yttrium, bis[bis(2-methylpropyl)aluminum]tetrakis(tetrahydrofuran)tetrakis
 [.mu.- (trifluoroacetato-.kappa.O:.kappa.O')]bis[.mu.3-[2,2,2-trifluoro-1,1-
 ethanediolato(2-)-.kappa.O:.kappa.O,.kappa.O':.kappa.O']]di-, (Y-Y) (9CI)
 (CA INDEX NAME)

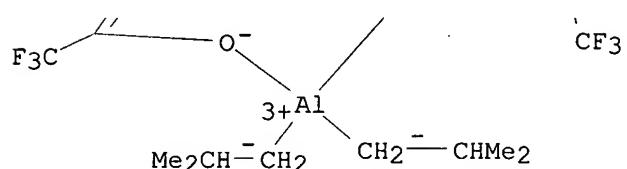
PAGE 1-A



PAGE 2-A

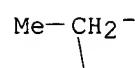


PAGE 3-A

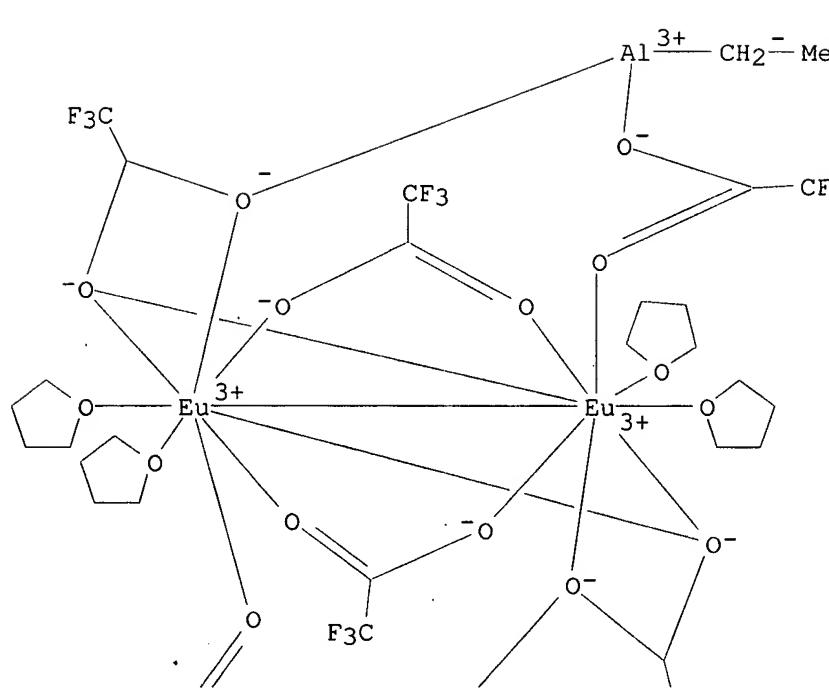


RN 168068-99-3 HCAPLUS
 CN Europium, bis(diethylaluminum)tetrakis(tetrahydrofuran)tetrakis[.mu.-
 (trifluoroacetato-.kappa.O:.kappa.O')]bis[.mu.3-[2,2,2-trifluoro-1,1-
 ethanediolato(2-)-.kappa.O:.kappa.O,.kappa.O':.kappa.O']]di- (9CI) (CA
 INDEX NAME)

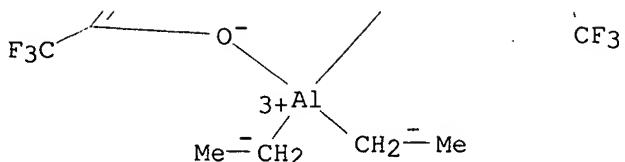
PAGE 1-A



PAGE 2-A

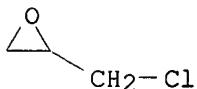


PAGE 3-A



IT 24969-06-0P, Epichlorohydrin homopolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and characterization of neodymium-, europium- and
 yttrium-aluminum and their catalytic activities for polymn. of some
 polar monomers)
 RN 24969-06-0 HCAPLUS
 CN Oxirane, (chloromethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8
CMF C3 H5 Cl O

L28 ANSWER 21 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:721059 HCAPLUS
 DN 123:84380
 TI Copolymerization of tetrahydrofurans and cyclic anhydrides
 IN Drysdale, Neville Everton
 PA du Pont de Nemours, E. I., and Co., USA
 SO PCT Int. Appl., 25 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C08G065-20
 ICS C08G065-10; C08G063-82; C08G063-66
 CC 35-7 (Chemistry of Synthetic High Polymers)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9419392	A1	19940901	WO 1993-US10140	19931029
	W: JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 686167	A1	19951213	EP 1993-925001	19931029
	EP 686167	B1	19980708		
	R: DE, ES, NL				
	JP 08506851	T2	19960723	JP 1993-518935	19931029
	ES 2118265	T3	19980916	ES 1993-925001	19931029
	US 5990264	A	19991123	US 1996-690119	19960731
PRAI	US 1993-21369		19930223		
	WO 1993-US10140		19931029		
	US 1995-505293		19950822		
AB	Poly(ester-ethers) are produced by the copolyrn. of THF and cyclic carboxylic anhydrides using selected metal perfluoroalkylsulfonates and				

related compds. as catalysts, optionally with carboxylic acid activator. The resulting copolymers are useful as intermediates for monomers for use in other polymers. Polymn. of 2 g maleic anhydride and 20 mL THF in the presence of 1 g yttrium triflate $Y(O_3SCF_3)_3$ catalyst gave copolymer having no.-av. mol. wt. 96,800, wt.-av. mol. wt. 188,000, and polydispersity 1.95.

ST polyester **polyether** manuf **ring opening** catalyst; THF maleic anhydride copolymer manuf; yttrium triflate **ring opening** polymn catalyst; metal perfluoroalkylsulfonate polymn catalyst

IT **Polyethers**, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(polyester-, manufd. in presence of select **ring opening** metal perfluoroalkylsulfonate catalyst)

IT Polyesters, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(polyether-, manufd. in presence of select **ring opening** metal perfluoroalkylsulfonate catalyst)

IT Polymerization catalysts
(**ring-opening**, metal perfluoroalkylsulfonate; polTHF copolyrn in presence of)

IT 27532-13-4 34622-08-7, Neodymium triflate 52093-30-8, Yttrium triflate 89672-77-5 139177-62-1; Dysprosium triflate 139177-64-3, Erbium triflate 144026-79-9, Scandium triflate
RL: **CAT (Catalyst use)**; **USES (Uses)**
(THF copolyrn in presence of)

IT 25657-73-2P 29564-74-7P, Succinic anhydride-tetrahydrofuran copolymer 29564-75-8P 165890-28-8P 165890-29-9P 165890-30-2P 165890-31-3P
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufd. in presence of select metal perfluoroalkylsulfonate catalyst)

IT 2923-28-6, Silver triflate
RL: RCT (Reactant)
(reaction with THF and pentamethylcyclopentadienyl zirconium dichloride)

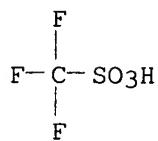
IT 54039-38-2, Bis(pentamethylcyclopentadienyl)zirconium dichloride
RL: RCT (Reactant)
(reaction with THF and silver triflate)

IT 109-99-9, reactions
RL: RCT (Reactant)
(reaction with silver triflate and pentamethylcyclopentadienyl zirconium dichloride)

IT 34622-08-7, Neodymium triflate 52093-30-8, Yttrium triflate 139177-62-1, Dysprosium triflate 139177-64-3, Erbium triflate 144026-79-9, Scandium triflate
RL: **CAT (Catalyst use)**; **USES (Uses)**
(THF copolyrn in presence of)

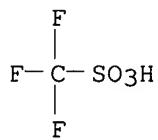
RN 34622-08-7 HCAPLUS

CN Methanesulfonic acid, trifluoro-, neodymium(3+) salt (9CI) (CA INDEX NAME)



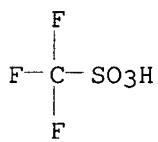
1/3 Nd(III)

RN 52093-30-8 HCAPLUS
CN Methanesulfonic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



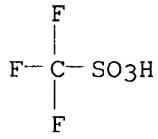
1/3 Y(III)

RN 139177-62-1 HCAPLUS
CN Methanesulfonic acid, trifluoro-, dysprosium(3+) salt (9CI) (CA INDEX NAME)



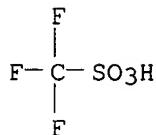
1/3 Dy(III)

RN 139177-64-3 HCAPLUS
CN Methanesulfonic acid, trifluoro-, erbium(3+) salt (9CI) (CA INDEX NAME)



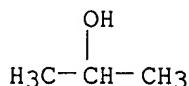
1/3 Er(III)

RN 144026-79-9 HCAPLUS
CN Methanesulfonic acid, trifluoro-, scandium(3+) salt (9CI) (CA INDEX NAME)



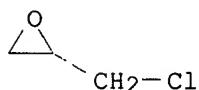
1/3 Sc(III)

L28 ANSWER 22 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:701594 HCAPLUS
 DN 123:84196
 TI The polymerization of epichlorohydrin with Nd(i-OPr)3-Al(i-Bu)3 system
 AU Liu, Jianfei; Sun, Junquan; Shen, Zhiquan
 CS Dep. Polymer Sci. Eng., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Chin. J. Polym. Sci. (1994), 12(2), 153-6
 CODEN: CJPSEG; ISSN: 0256-7679
 DT Journal
 LA English
 CC 35-7 (Chemistry of Synthetic High Polymers)
 AB Epichlorohydrin was polymd. with a rare earth catalytic system Nd(iso-OPr)3/Al(iso-Bu)3. The effects of Al/Nd molar ratio, solvents, polymn. time and temp., the aging time and temp. in the catalyst prepn. were studied. At low Al/Nd molar ratio (4) of the Nd(iso-OPr)3/Al(iso-Bu)3 and low temp. (248K) the polymer was obtained with high conversion. The av. mol. wt. of poly(epichlorohydrin) ranged from 1 .times. 105 to 3 .times. 105.
 ST epichlorohydrin polymn neodymium aluminum catalyst; polyepichlorohydrin prepn neodymium aluminum catalyst
 IT Polyoxalkylenes, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst system)
 IT Polymerization catalysts
 (ring-opening, polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst system)
 IT 100-99-2, Triisobutylaluminum, uses 19236-15-8, Neodymium triisopropoxide
 RL: CAT (Catalyst use); USES (Uses)
 (polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst system)
 IT 24969-06-0P, Polyepichlorohydrin 61710-61-0P,
 Polyepichlorohydrin SRU
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst system)
 IT 19236-15-8, Neodymium triisopropoxide
 RL: CAT (Catalyst use); USES (Uses)
 (polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst system)
 RN 19236-15-8 HCAPLUS
 CN 2-Propanol, neodymium(3+) salt (9CI) (CA INDEX NAME)



1/3 Nd(III)

IT 24969-06-0P, Polyepichlorohydrin
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (polymn. of epichlorohydrin with Nd(iso-OPr)3/Al(iso-Bu)3 catalyst
 system)
 RN 24969-06-0 HCAPLUS
 CN Oxirane, (chloromethyl)-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 106-89-8
 CMF C3 H5 Cl O



L28 ANSWER 23 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:27417 HCAPLUS
 DN 122:161442
 TI Synthesis and structural characterization of MAn-PO copolymer prepared by
 rare earth coordination catalyst
 AU Chen, Xianhai; Zhang, Yifeng; Shen, Zhiqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Gaofenzi Xuebao (1994), (1), 70-5
 CODEN: GAXUE9; ISSN: 1000-3304
 DT Journal
 LA Chinese
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB Ring-opening polymn. of maleic anhydride (MAn) with
 propylene oxide (PO) was successfully carried out by using rare earth
 complexes (i.e., Nd(P2O4)3, Nd(P5O7)3, Nd(naph)3 and Nd(acac)3) in
 combination with alkylaluminum as catalysts for the first time. The
 relative concn. of triades of the MAn-PO copolymer obtained was
 investigated with 1H-NMR. The rare-earth coordination systems were
 favorable catalysts for the polymn. of MAn with PO, giving high yield
 and almost alternating copolymer. The no.-av. mol. wt. and polydispersity
 were 2000-3000 and 1.3-1.7, resp. The compn. and the monomer distribution
 were affected by the monomer charge ratio, sorts of catalysts, and the
 property of solvents. The monomer compn. of the copolymer predicted from
 the third-order Markoffian process fit the obsd. 1H-NMR data perfectly.
 ST ring opening polymn maleic anhydride oxypropylene;
 propylene oxide copolymer mol wt; rare earth complex catalyst polymn
 IT Solvent effect
 (solvent effects on synthesis and chain structure of polyether
 -polyesters prep'd. by rare earth coordination catalysts)
 IT Naphthenic acids, uses
 RL: CAT (Catalyst use); USES (Uses)

(neodymium salts, catalyst; synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT Polyethers, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (polyester-, synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT Polyesters, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (polyether-, synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT Polymerization

Polymerization catalysts

(ring-opening, synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT 14589-38-9 38326-04-4 79321-05-4

RL: CAT (Catalyst use); USES (Uses) (contg. alkylaluminum; synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT 97-93-8, Triethylaluminum, uses 100-99-2, Tri(isobutyl)aluminum, uses 7440-00-8D, Neodymium, naphthenates

RL: CAT (Catalyst use); USES (Uses) (rare earth complex catalysts contg. alkylaluminum; synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT 28156-21-0P, Maleic anhydride-propylene oxide copolymer

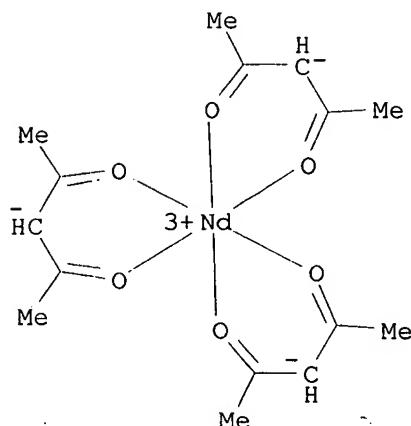
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

IT 14589-38-9 38326-04-4 79321-05-4

RL: CAT (Catalyst use); USES (Uses) (contg. alkylaluminum; synthesis and chain structure of polyether-polyesters prepd. by rare earth coordination catalysts)

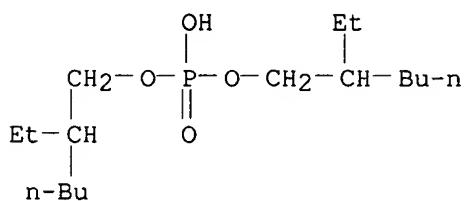
RN 14589-38-9 HCPLUS

CN Neodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI) (CA INDEX NAME)



RN 38326-04-4 HCPLUS

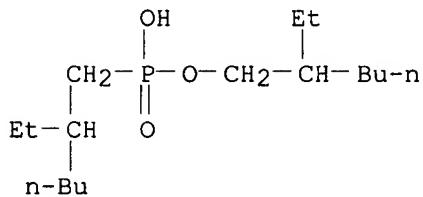
CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Nd(III)

RN 79321-05-4 HCAPLUS

CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Nd(III)

IT 28156-21-0P, Maleic anhydride-propylene oxide copolymer

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and chain structure of polyether-polyesters prep'd.
by rare earth coordination catalysts)

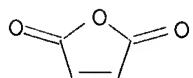
RN 28156-21-0 HCAPLUS

CN 2,5-Furandione, polymer with methyloxirane (9CI) (CA INDEX NAME)

CM 1

CRN 108-31-6

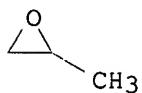
CMF C4 H2 O3



CM 2

CRN 75-56-9

CMF C3 H6 O



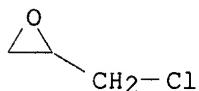
L28 ANSWER 24 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1995:19533 HCAPLUS
 DN 122:32129
 TI Rare earth trifluoroacetylacetone complex catalysts for the **ring-opening** polymerization of epichlorohydrin
 AU Hu, Meixian; Zhang, Yifeng; Wang, Xiaoling; Shen, Zhiqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
 SO Zhejiang Daxue Xuebao, Ziran Kexueban (1993), 27(2), 165-70
 CODEN: ZDXKE5
 DT Journal
 LA Chinese
 CC 35-3 (Chemistry of Synthetic High **Polymers**)
 AB The tris(trifluoroacetylacetone) rare earth element complexes were prepd. and evaluated as catalysts for **ring-opening** polymn. of epichlorohydrin. Triisobutylaluminum was used as cocatalyst. The kinetics of the polymn. were investigated.
 ST rare earth trifluoroacetylacetone polymn catalyst; epichlorohydrin polymn catalyst kinetics
 IT Polyoxalkylenes, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. by **ring-opening** polymn. of epichlorohydrin
 in presence of rare earth trifluoroacetylacetone complex catalysts)
 IT Kinetics of polymerization
 (**ring-opening**, of epichlorohydrin in presence of
 rare earth trifluoroacetylacetone complex catalysts)
 IT Polymerization catalysts
 (**ring-opening**, rare earth trifluoroacetylacetone
 complexes for epichlorohydrin)
 IT 100-99-2, Triisobutylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (cocatalyst; rare earth trifluoroacetylacetone complex catalysts for
 the **ring-opening** polymn. of epichlorohydrin)
 IT 106-89-8, Epichlorohydrin, reactions
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC
 (Process)
 (kinetics of **ring-opening** polymn. of
 epichlorohydrin in presence of rare earth trifluoroacetylacetone
 complex catalysts)
 IT 24969-06-0P, Polyepichlorohydrin 61710-61-0P,
 Polyepichlorohydrin sru
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. by **ring-opening** polymn. of epichlorohydrin
 in presence of rare earth trifluoroacetylacetone complex catalysts)
 IT 14526-21-7P, Europium tris(trifluoroacetylacetone)
 14526-25-1P, Terbium tris(trifluoroacetylacetone)
 14640-68-7P, Lanthanum tris(trifluoroacetylacetone)
 18923-96-1P, Yttrium tris(trifluoroacetylacetone)
 21654-48-8P, Dysprosium tris(trifluoroacetylacetone)
 22017-02-3P, Holmium tris(trifluoroacetylacetone)
 23301-82-8P, Samarium tris(trifluoroacetylacetone)
 59991-56-9P, Praseodymium tris(trifluoroacetylacetone)
 67118-77-8P, Erbium tris(trifluoroacetylacetone)
 97011-37-5P, Thulium tris(trifluoroacetylacetone)
 97042-23-4P, Ytterbium tris(trifluoroacetylacetone)

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (rare earth trifluoroacetylacetone complex catalysts for the
 ring-opening polymn. of epichlorohydrin)

IT 106-89-8, Epichlorohydrin, reactions
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process)
 (kinetics of ring-opening polymn. of
 epichlorohydrin in presence of rare earth trifluoroacetylacetone
 complex catalysts)

RN 106-89-8 HCPLUS

CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)

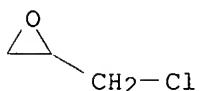


IT 24969-06-0P, Polyepichlorohydrin
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prep. by ring-opening polymn. of epichlorohydrin
 in presence of rare earth trifluoroacetylacetone complex catalysts)

RN 24969-06-0 HCPLUS

CN Oxirane, (chloromethyl)-, homopolymer (9CI) (CA INDEX NAME)

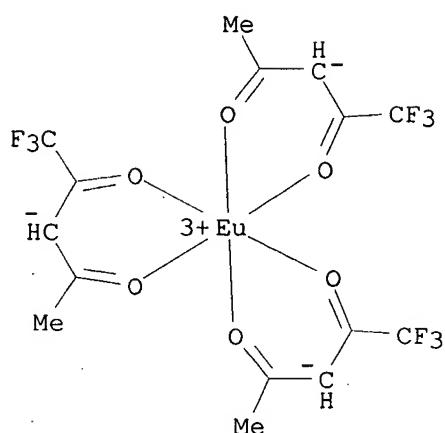
CM 1

CRN 106-89-8
CMF C3 H5 Cl O

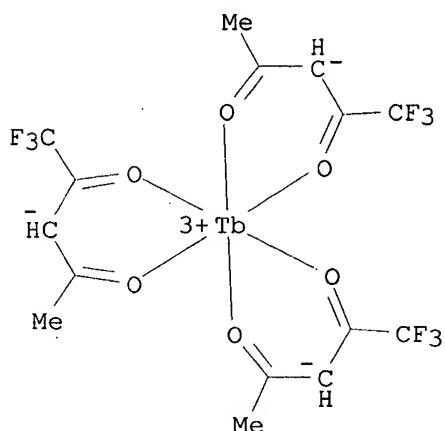
IT 14526-21-7P, Europium tris(trifluoroacetylacetone)
 14526-25-1P, Terbium tris(trifluoroacetylacetone)
 14640-68-7P, Lanthanum tris(trifluoroacetylacetone)
 18923-96-1P, Yttrium tris(trifluoroacetylacetone)
 21654-48-8P, Dysprosium tris(trifluoroacetylacetone)
 22017-02-3P, Holmium tris(trifluoroacetylacetone)
 23301-82-8P, Samarium tris(trifluoroacetylacetone)
 59991-56-9P, Praseodymium tris(trifluoroacetylacetone)
 67118-77-8P, Erbium tris(trifluoroacetylacetone)
 97011-37-5P, Thulium tris(trifluoroacetylacetone)
 97042-23-4P, Ytterbium tris(trifluoroacetylacetone)
 RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (rare earth trifluoroacetylacetone complex catalysts for the
 ring-opening polymn. of epichlorohydrin)

RN 14526-21-7 HCPLUS

CN Europium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')- (9CI) (CA INDEX NAME)

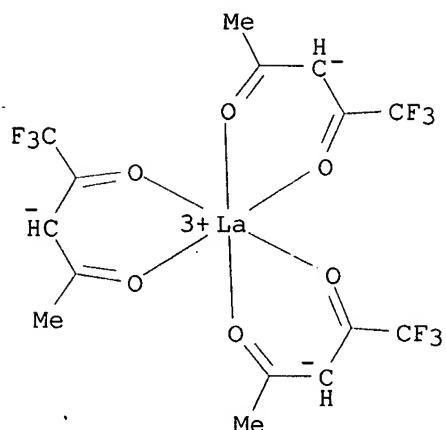


RN 14526-25-1 HCAPLUS

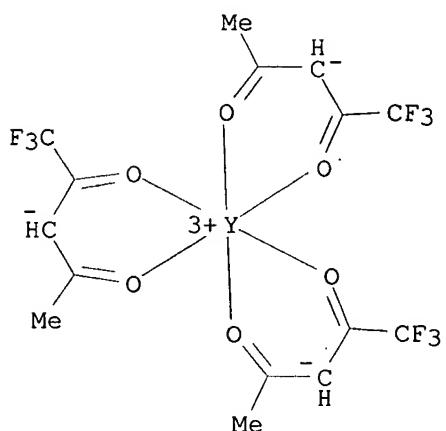
CN Terbium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)

RN 14640-68-7 HCAPLUS

CN Lanthanum, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)

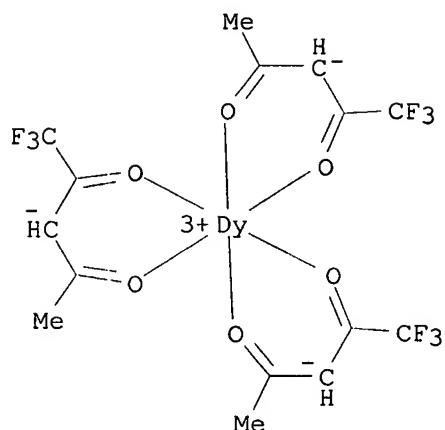


RN 18923-96-1 HCPLUS

CN Yttrium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)

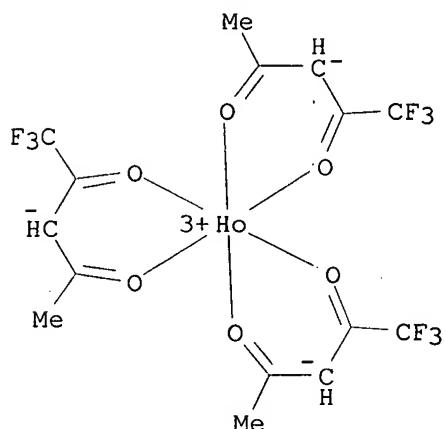
RN 21654-48-8 HCPLUS

CN Dysprosium, tris(1,1,1-trifluoro-2,4-pentanedionato-O,O')- (9CI) (CA
INDEX NAME)



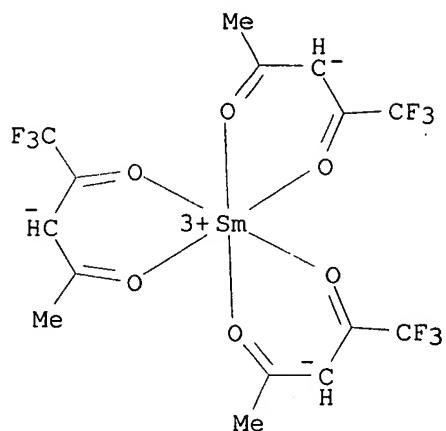
RN 22017-02-3 HCPLUS

CN Holmium, tris(1,1,1-trifluoro-2,4-pentanedionato-O,O')- (9CI) (CA INDEX NAME)

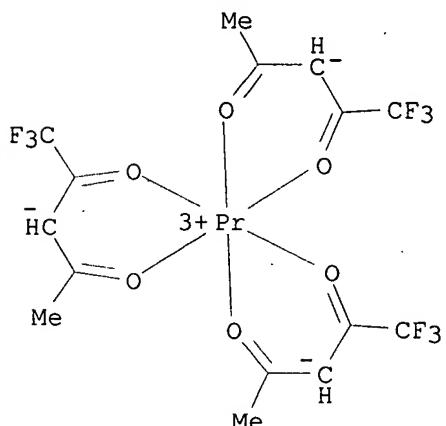


RN 23301-82-8 HCPLUS

CN Samarium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O,.kappa.O')- (9CI) (CA INDEX NAME)

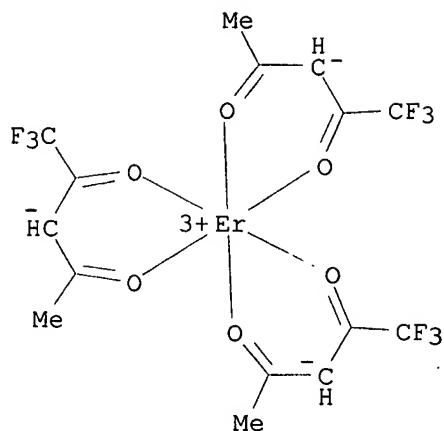


RN 59991-56-9 HCPLUS

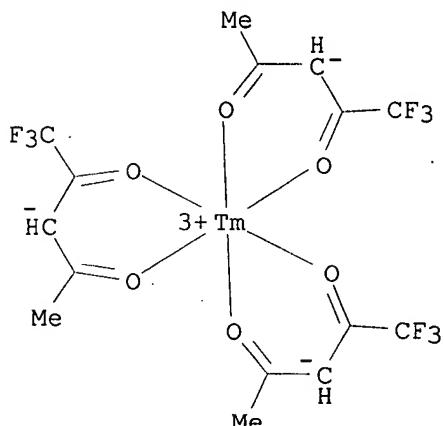
CN Praseodymium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)

RN 67118-77-8 HCPLUS

CN Erbium, tris(1,1,1-trifluoro-2,4-pentanedionato-O,O')- (9CI) (CA INDEX
NAME)

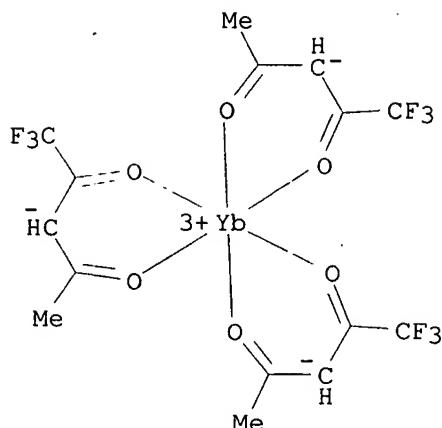


RN 97011-37-5 HCPLUS

CN Thulium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)

RN 97042-23-4 HCPLUS

CN Ytterbium, tris(1,1,1-trifluoro-2,4-pentanedionato-.kappa.O, .kappa.O')-
(9CI) (CA INDEX NAME)



L28 ANSWER 25 OF 38 HCAPLUS COPYRIGHT 2001 ACS

AN 1994:218670 HCAPLUS

DN 120:218670

TI **Ring-opening** alternating copolymerization of maleic anhydride and propylene oxide by Nd(P507)3-Al(i-Bu)3

AU Fang, Jianghua; Huang, Shili; Shen, Zhiqian

CS Dep. Chem., Ningbo Coll. Ningbo, Ningbo, 315020, Peop. Rep. China

SO Fenzi Cuihua (1994), 8(1), 70-5

CODEN: FECUEN; ISSN: 1001-3555

DT Journal

LA Chinese

CC 35-3 (Chemistry of Synthetic High Polymers)

AB The characteristics and product structure of alternating copolymer. of propylene oxide (I) with maleic anhydride (II) catalyzed by Nd(P507)3-Al(iso-Bu)3 are presented and discussed. The structure of the copolymer is studied with IR and NMR. There is >44% II in the copolymer by calcg. the ratio of peak area of 1H-NMR from the copolymer obtained from different monomer ratio. The copolymer. can be realized in the solvents such as arom. hydrocarbon and alkane. The yield and [.eta.] are higher in arom. hydrocarbon than in other solvents. In benzene, the yield is 68.4%, [.eta.] = 8.6 .times. 10-2 dL/g. The way of adding the raw materials to the reaction system influences the yield. The better order is II .fwdarw. solvent .fwdarw. I .fwdarw. catalyst. The more suitable concn. of catalysts is [Nd] = 1.0 .times. 10-2 mol/L, [Al]/[Nd] = 6-8. The higher is the temp. of copolymer., the higher are the yield and [.eta.]. The more suitable temp. is 60-70.degree..

ST propylene oxide polymn catalyst; maleic anhydride polymn catalyst; **ring opening** alternating polymn catalyst; neodymium polymn catalyst **ring opening**; aluminum polymn catalyst **ring opening**

IT Solvent effect

(on alternating **ring-opening** polymn. of maleic anhydride with propylene oxide in presence of aluminum-neodymium catalysts)

IT Polymerization catalysts

(alternating, **ring-opening**, aluminum-neodymium, for maleic anhydride with propylene oxide)

IT 100-99-2, Triisobutylaluminum, uses

RL: CAT (Catalyst use); USES (Uses)

(catalysts, contg. neodymium, for **ring-opening** alternating copolymer. of maleic anhydride with propylene oxide)

IT 79321-05-4

RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum, for ring-opening alternating copolyrn. of maleic anhydride with propylene oxide)

IT 9016-84-6P 28156-21-0P

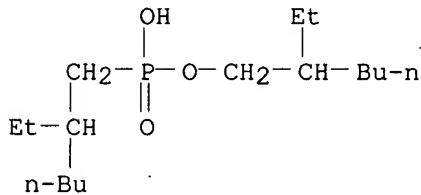
RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, aluminum-neodymium as)

IT 79321-05-4

RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum, for ring-opening alternating copolyrn. of maleic anhydride with propylene oxide)

RN 79321-05-4 HCPLUS

CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Nd(III)

IT 28156-21-0P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, aluminum-neodymium as)

RN 28156-21-0 HCPLUS

CN 2,5-Furandione, polymer with methyloxirane (9CI) (CA INDEX NAME)

CM 1

CRN 108-31-6

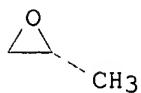
CMF C4 H2 O3



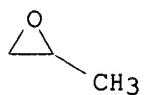
CM 2

CRN 75-56-9

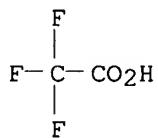
CMF C3 H6 O



L28 ANSWER 26 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 1994:31318 HCAPLUS
DN 120:31318
TI **Ring-opening** polymerization of tetrahydrofuran with rare earth-contained catalysts
AU Li, Fengfu; Jin, Yingtai; Pei, Fengkui; Wang, Fosong
CS Changchun Inst. Appl. Chem., Acad. Sin., Changchun, Peop. Rep. China
SO J. Appl. Polym. Sci. (1993), 50(11), 2017-20
CODEN: JAPNAB; ISSN: 0021-8995
DT Journal
LA English
CC 35-3 (Chemistry of Synthetic High Polymers)
AB Rare earth trifluoroacetates, $\text{Ln}(\text{CF}_3\text{CO}_2)_3$ ($\text{Ln} = 13$ rare earth elements), combined with $\text{RnAlH}_3\text{-n}$ ($\text{R} = \text{Me}$, octyl, $n = 3$; $\text{R} = \text{Et}$, iso-Bu, $n = 2, 3$) were used as catalysts for the polymn. of THF. The activity increased by adding propylene oxide (I), as a promoter, to the polymn. system, producing high mol. wt. polytetrahydrofuran (PTHF). The effects of Ln , I/Ln ratio, Al/Ln ratio, and other factors on the polymn. of THF were also studied.
ST THF polymn catalyst rare earth; **ring opening** polymn
THF
IT Polymerization catalysts
(**ring-opening**, rare earth trifluoroacetate-based, for THF)
IT 75-56-9, Propylene oxide, uses 2263-49-2, Samarium tris(trifluoroacetate) 29770-44-3, Neodymium tris(trifluoroacetate) 37737-28-3 58097-52-2, Terbium tris(trifluoroacetate) 70236-92-9 70236-93-0 70236-94-1 70236-95-2, Europium tris(trifluoroacetate) 70236-96-3 70236-97-4, Dysprosium tris(trifluoroacetate) 70236-98-5, Holmium tris(trifluoroacetate) 70236-99-6, Erbium tris(trifluoroacetate) 70237-00-2, Thulium tris(trifluoroacetate)
RL: CAT (Catalyst use); USES (Uses)
(catalysts contg., for polymn. of THF)
IT 75-24-1, Trimethylaluminum 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses 871-27-2, Diethylaluminum hydride 1070-00-4, Trioctylaluminum 1191-15-7, Diisobutylaluminum hydride
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. rare earth trifluoroacetates, for polymn. of THF)
IT 24979-97-3P, Poly(tetrahydrofuran)
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, rare earth trifluoroacetate-based catalysts for)
IT 75-56-9, Propylene oxide, uses 2263-49-2, Samarium tris(trifluoroacetate) 29770-44-3, Neodymium tris(trifluoroacetate) 37737-28-3 58097-52-2, Terbium tris(trifluoroacetate) 70236-92-9 70236-93-0 70236-94-1 70236-95-2, Europium tris(trifluoroacetate) 70236-96-3 70236-97-4, Dysprosium tris(trifluoroacetate) 70236-98-5, Holmium tris(trifluoroacetate) 70236-99-6, Erbium tris(trifluoroacetate) 70237-00-2, Thulium tris(trifluoroacetate)
RL: CAT (Catalyst use); USES (Uses)
(catalysts contg., for polymn. of THF)
RN 75-56-9 HCAPLUS
CN Oxirane, methyl- (9CI) (CA INDEX NAME)

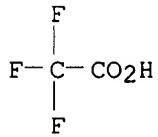


RN 2263-49-2 HCPLUS
 CN Acetic acid, trifluoro-, samarium(3+) salt (9CI) (CA INDEX NAME)



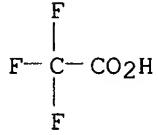
1/3 Sm(III)

RN 29770-44-3 HCPLUS
 CN Acetic acid, trifluoro-, neodymium(3+) salt (8CI, 9CI) (CA INDEX NAME)



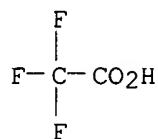
1/3 Nd(III)

RN 37737-28-3 HCPLUS
 CN Acetic acid, trifluoro-, yttrium(3+) salt (9CI) (CA INDEX NAME)



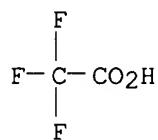
1/3 Y(III)

RN 58097-52-2 HCPLUS
 CN Acetic acid, trifluoro-, terbium(3+) salt (9CI) (CA INDEX NAME)



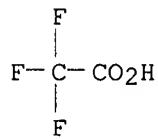
1/3 Tb(III)

RN 70236-92-9 HCPLUS
 CN Acetic acid, trifluoro-, lanthanum(3+) salt (9CI) (CA INDEX NAME)



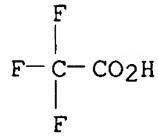
1/3 La(III)

RN 70236-93-0 HCPLUS
 CN Acetic acid, trifluoro-, cerium(3+) salt (9CI) (CA INDEX NAME)



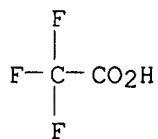
1/3 Ce(III)

RN 70236-94-1 HCPLUS
 CN Acetic acid, trifluoro-, praseodymium(3+) salt (9CI) (CA INDEX NAME)



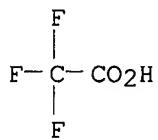
1/3 Pr(III)

RN 70236-95-2 HCPLUS
 CN Acetic acid, trifluoro-, europium(3+) salt (9CI) (CA INDEX NAME)



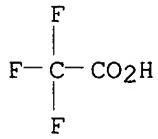
1/3 Eu(III)

RN 70236-96-3 HCPLUS
 CN Acetic acid, trifluoro-, gadolinium(3+) salt (9CI) (CA INDEX NAME)



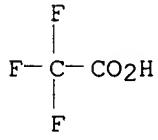
1/3 Gd(III)

RN 70236-97-4 HCPLUS
 CN Acetic acid, trifluoro-, dysprosium(3+) salt (9CI) (CA INDEX NAME)



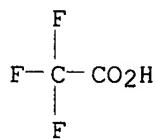
1/3 Dy(III)

RN 70236-98-5 HCPLUS
 CN Acetic acid, trifluoro-, holmium(3+) salt (9CI) (CA INDEX NAME)



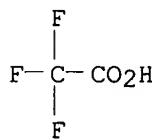
1/3 Ho(III)

RN 70236-99-6 HCPLUS
 CN Acetic acid, trifluoro-, erbium(3+) salt (9CI) (CA INDEX NAME)



1/3 Er(III)

RN 70237-00-2 HCPLUS
 CN Acetic acid, trifluoro-, thulium(3+) salt (9CI) (CA INDEX NAME)



●1/3 Tm(III)

L28 ANSWER 27 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 1993:102546 HCPLUS
 DN 118:102546
 TI Synthesis of functional unsaturated polyesters using rare earth coordination catalysts. 3. Mechanistic aspects of maleic anhydride-epichlorohydrin copolymerization with Nd[(RO)2PO2]3/Al[CH2CH(CH3)2]3 as a catalyst
 AU Chen, Xianhai; Zhang, Yifeng; Shen, Zhiqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Makromol. Chem. (1992), 193(12), 2989-95
 CODEN: MACEAK; ISSN: 0025-116X
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB **Ring-opening** alternating copolymer of maleic anhydride with epichlorohydrin was carried out at 70.degree. with rare earth coordination catalysts composed of Nd[(RO)2PO2]3 (R = BuCH₂CH₂) and trialkylaluminum. Anal. of end groups showed that the copolymer chain contained 1 OH and 1 CH:CHCOBu-iso end group. IR, UV-visible, and ¹H NMR spectroscopy and gel-permeation chromatog. results implied that a catalyst-maleic anhydride complex was formed in the initiation step and that the **ring-opening** copolymer proceeded via coordinate insertion mechanism accompanied by chain transfer.
 ST **ring opening** alternating polymer catalyst; maleic anhydride epichlorohydrin alternating polymer; neodymium aluminum catalyst polymer
 IT Chain transfer
 (in alternating **ring-opening** polymer of epichlorohydrin with maleic anhydride)
 IT Polymerization catalysts
 (alternating, **ring-opening**, neodymium-aluminum, for epichlorohydrin with maleic anhydride)

IT Polymerization
(alternating, **ring-opening**, of epichlorohydrin with maleic anhydride, unsatd. polyesters from)

IT Polyesters, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(unsatd., chlorine-contg., prepn. of, by alternating **ring-opening** polymn. in presence of neodymium-aluminum catalysts)

IT 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. neodymium, for alternating, **ring-opening** polymn. of epichlorohydrin with maleic anhydride)

IT 38326-04-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum, for alternating, **ring-opening** polymn. of epichlorohydrin with maleic anhydride)

IT 108-31-6, Maleic anhydride, reactions
RL: RCT (Reactant)
(polymn. of, alternating, with epichlorohydrin, in presence of neodymium-aluminum catalysts)

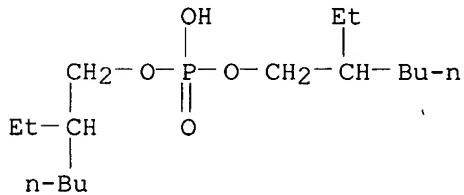
IT 106-89-8, Epichlorohydrin, reactions
RL: RCT (Reactant)
(polymn. of, alternating, with maleic anhydride, in presence of neodymium-aluminum catalysts)

IT 145267-18-1P 146116-27-0P, Epichlorohydrin-maleic anhydride alternating copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, in presence of neodymium-aluminum catalysts)

IT 38326-04-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum, for alternating, **ring-opening** polymn. of epichlorohydrin with maleic anhydride)

RN 38326-04-4 HCPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)

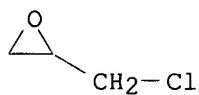


●1/3 Nd(III)

IT 106-89-8, Epichlorohydrin, reactions
RL: RCT (Reactant)
(polymn. of, alternating, with maleic anhydride, in presence of neodymium-aluminum catalysts)

RN 106-89-8 HCPLUS

CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)

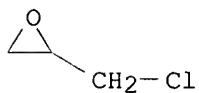


IT 146116-27-0P, Epichlorohydrin-maleic anhydride alternating copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, in presence of neodymium-aluminum catalysts)
 RN 146116-27-0 HCPLUS
 CN 2,5-Furandione, polymer with (chloromethyl)oxirane, alternating (9CI) (CA INDEX NAME)

CM 1

CRN 108-31-6
CMF C4 H2 O3

CM 2

CRN 106-89-8
CMF C3 H5 Cl O

L28 ANSWER 28 OF 38 HCPLUS COPYRIGHT 2001 ACS
 AN 1992:592810 HCPLUS
 DN 117:192810
 TI Synthesis of functional unsaturated polyester by using rare earth catalysts. I. Copolymerization of epichlorohydrin with maleic anhydride in the presence of yttrium phosphonate-triisobutylaluminum [Y(P5O7)3-Al(i-Bu)₃]
 AU Shen, Zhiqian; Chen, Xianhai; Zhang, Yifeng; Chen, Baoqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Polym. Bull. (Berlin) (1992), 29(1-2), 57-62
 CODEN: POBUDR; ISSN: 0170-0839
 DT Journal
 LA English
 CC 37-3 (Plastics Manufacture and Processing)
 Section cross-reference(s): 35
 AB Ring-opening copolymer of epichlorohydrin (I) with maleic anhydride (II) was catalyzed by Y phosphonate in combination with iso-Bu₃Al for the 1st time to give almost alternating functional copolyester. The yield and compn. of the copolymer were affected by the reaction conditions, esp. the initial monomer charge ratio. The overall activation energy of the copolymer was 19.0 kcal/mol. Evidence for the structure of I-II copolymer was obtained by IR and 1H-NMR.

ST alternating epichlorohydrin maleic anhydride polyester; yttrium phosphonate polymn catalyst polyester

IT Polymerization
(of epichlorohydrin with maleic anhydride, activation energy of)

IT Polyesters, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, rare earth catalysts for)

IT Polymerization catalysts
(triisobutylaluminum-yttrium phosphonate, for epichlorohydrin with maleic anhydride)

IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum, for polymn. of epichlorohydrin with maleic anhydride)

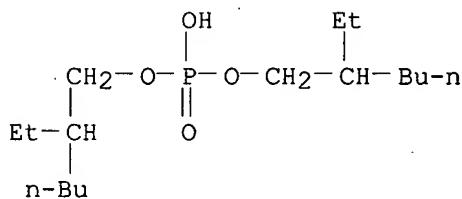
IT 100-99-2, Triisobutylaluminum, uses
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. yttrium phosphonate, for polymn. of epichlorohydrin with maleic anhydride)

IT 30664-18-7P, Epichlorohydrin-maleic anhydride copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, rare earth catalysts for)

IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum, for polymn. of epichlorohydrin with maleic anhydride)

RN 38326-06-6 HCPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Y(III)

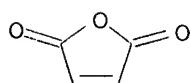
IT 30664-18-7P, Epichlorohydrin-maleic anhydride copolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, rare earth catalysts for)

RN 30664-18-7 HCPLUS

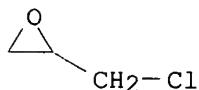
CN 2,5-Furandione, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 108-31-6
CMF C4 H2 O3



CM 2

CRN 106-89-8
CMF C3 H5 Cl O

L28 ANSWER 29 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1992:490883 HCAPLUS
 DN 117:90883
 TI Polymerization of epichlorohydrin by yttrium acetylacetone
 AU Zhang, Yifeng; Shen, Zhiqian; Zheng, Ronghua; Chen, Xianhai
 CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Yingyong Huaxue (1992), 9(3), 76-8
 CODEN: YIHUED
 DT Journal
 LA Chinese
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB Y tris(acetylacetone)-water-Al(iso-Bu)₃ system was used as a catalyst for polymn. of epichlorohydrin (I). When the molar ratio of water/Al = 0.5 and Al/Y = 8-12, the conversion rate of I increased while the mol. wt. of polyepichlorohydrin (II) decreased with increasing Al-Y molar ratio. The mol.-wt. distribution of II detd. by gel chromatog. showed that the no. of active species was dependent on the method of catalyst prepn. The activity of the above catalyst system for copolymn. of I with **ethylene oxide** (III) and propylene oxide (IV) was low and could be increased by increasing Al-Y molar ratio. The relative reactivity of the monomers decreased in the order of III > IV > I.
 ST yttrium acetylacetone polymn catalyst epichlorohydrin; water polymn catalyst epichlorohydrin; aluminum triisobutyl polymn catalyst epichlorohydrin; polyepichlorohydrin mol wt prepn catalyst; **ethylene oxide** copolymn epichlorohydrin; propylene oxide copolymn epichlorohydrin
 IT Reactivity ratio in polymerization
 (of epichlorohydrin with **ethylene oxide** or propylene oxide, in presence of yttrium tris(acetylacetone)-water-triisobutylaluminum catalyst)
 IT Polyoxalkylenes, preparation
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, yttrium tris(acetylacetone)-water-triisobutylaluminum as)
 IT Polymerization catalysts
 (ring-opening, triisobutylaluminum-**yttrium tris(acetylacetone)-water**, for epichlorohydrin)
 IT 15554-47-9, Yttrium tris(acetylacetone)
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. water and triisobutylaluminum, for homo- and copolymn. of epichlorohydrin)
 IT 100-99-2, Triisobutylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. water and yttrium tris(acetylacetone), for homo- and copolymn. of epichlorohydrin)
 IT 7732-18-5, Water, uses

RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. yttrium tris(acetylacetone) and triisobutylaluminum, for homo- and copolymn. of epichlorohydrin)

IT 75-21-8, Ethylene oxide, reactions
75-56-9, Propylene oxide, reactions
RL: RCT (Reactant)
(polymn. of, with epichlorohydrin, in presence of yttrium tris(acetylacetone)-water-triisobutylaluminum catalyst, reactivity ratio in)

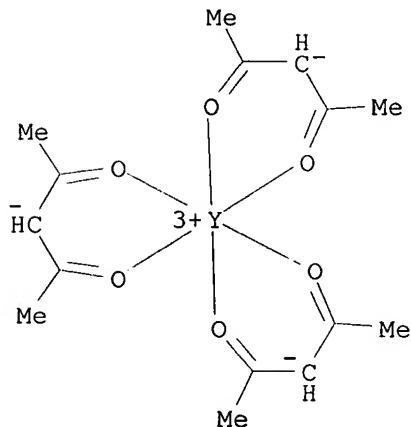
IT 106-89-8, Epichlorohydrin, reactions
RL: RCT (Reactant)
(polymn. of, with ethylene oxide or propylene oxide, in presence of yttrium tris(acetylacetone)-water-triisobutylaluminum catalyst, reactivity ratio in)

IT 24969-06-0P, Epichlorohydrin homopolymer 24969-08-2P,
Epichlorohydrin-propylene oxide copolymer 24969-10-6P,
Epichlorohydrin-ethylene oxide copolymer
61710-61-0P, Epichlorohydrin homopolymer, SRU
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, catalysts for, yttrium tris(acetylacetone)-water-triisobutylaluminum as)

IT 15554-47-9; Yttrium tris(acetylacetone)
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. water and triisobutylaluminum, for homo- and copolymn. of epichlorohydrin)

RN 15554-47-9 HCPLUS

CN Yttrium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



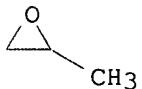
IT 75-21-8, Ethylene oxide, reactions
75-56-9, Propylene oxide, reactions
RL: RCT (Reactant)
(polymn. of, with epichlorohydrin, in presence of yttrium tris(acetylacetone)-water-triisobutylaluminum catalyst, reactivity ratio in)

RN 75-21-8 HCPLUS

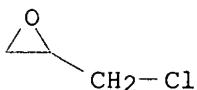
CN Oxirane (9CI) (CA INDEX NAME)



RN 75-56-9 HCPLUS
 CN Oxirane, methyl- (9CI) (CA INDEX NAME)



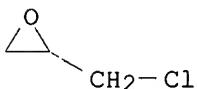
IT 106-89-8, Epichlorohydrin, reactions
 RL: RCT (Reactant)
 (polymn. of, with ethylene oxide or propylene
 oxide, in presence of yttrium tris(acetylacetone)-water-
 triisobutylaluminum catalyst, reactivity ratio in)
 RN 106-89-8 HCPLUS
 CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)



IT 24969-06-0P, Epichlorohydrin homopolymer 24969-08-2P,
 Epichlorohydrin-propylene oxide copolymer 24969-10-6P,
 Epichlorohydrin-ethylene oxide copolymer
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, yttrium tris(acetylacetone)-water-
 triisobutylaluminum as)
 RN 24969-06-0 HCPLUS
 CN Oxirane, (chloromethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

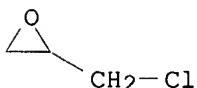
CRN 106-89-8
 CMF C3 H5 Cl O



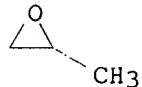
RN 24969-08-2 HCPLUS
 CN Oxirane, (chloromethyl)-, polymer with methyloxirane (9CI) (CA INDEX
 NAME)

CM 1

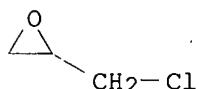
CRN 106-89-8
 CMF C3 H5 Cl O



CM 2

CRN 75-56-9
CMF C3 H6 ORN 24969-10-6 HCPLUS
CN Oxirane, (chloromethyl)-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8
CMF C3 H5 Cl O

CM 2

CRN 75-21-8
CMF C2 H4 OL28 ANSWER 30 OF 38 HCPLUS COPYRIGHT 2001 ACS
AN 1992:449427 HCPLUS

DN 117:49427

TI Polymerization catalysts for alkylene oxides

IN Jenkins, Derek Keith

PA Enichem Elastomers Ltd., UK

SO Brit. UK Pat. Appl., 6 pp.

CODEN: BAXXDU

DT Patent

LA English

IC ICM C08G065-10

ICS B01J031-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 67

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2247024	A1	19920219	GB 1991-17493	19910813
	GB 2247024	B2	19931027		

PRAI GB 1990-17875 19900815

AB Alkylene oxides are polymd. by aluminoxanes, rare earth salts or complexes in hydrocarbon solvents or diluents. Thus, polymg. C3H6O by 5 mM (based on 100 g C3H6O) Nd neodecanoate and 30 mol

(based on 1 mol Nd) Bu aluminoxanes in PhMe at 60.degree. for 24 h gave 68.7% polymers with intrinsic viscosity (in PhMe, 30.degree.) 1.81.

ST propylene oxide polymn aluminoxane catalyst; **alkylene oxide** polymn catalyst; **ring opening** polymn catalyst

IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(polymn. catalysts, for **alkylene oxides**)

IT Polymerization catalysts
(ring-opening, rare earth salts and aluminoxanes,
for **alkylene oxide**)

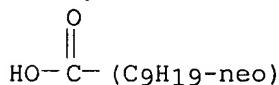
IT 106726-11-8
RL: CAT (Catalyst use); USES (Uses)
(polymn. catalysts, for **alkylene oxides**)

IT 25322-69-4P, Propylene oxide homopolymer
RL: PREP (Preparation)
(prepn. of, polymn. catalysts for)

IT 106726-11-8
RL: CAT (Catalyst use); USES (Uses)
(polymn. catalysts, for **alkylene oxides**)

RN 106726-11-8 HCPLUS

CN Neodecanoic acid, neodymium(3+) salt (9CI) (CA INDEX NAME)

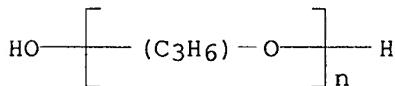


1/3 Nd(III)

IT 25322-69-4P, Propylene oxide homopolymer
RL: PREP (Preparation)
(prepn. of, polymn. catalysts for)

RN 25322-69-4 HCPLUS

CN Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-hydroxy- (9CI)
(CA INDEX NAME)



L28 ANSWER 31 OF 38 HCPLUS COPYRIGHT 2001 ACS
AN 1992:21514 HCPLUS
DN 116:21514
TI Kinetic study of **ring-opening** polymerization of
alkylene oxide based on rare earth coordination
catalysts
AU Peng, Jiande; Zhang, Yifeng; Shen, Zhiqian
CS Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
SO Gaofenzi Xuebao (1991), (2), 184-9
CODEN: GAXUE9; ISSN: 1000-3304
DT Journal
LA Chinese
CC 35-3 (Chemistry of Synthetic High Polymers)

AB Polymn. of epichlorohydrin (I) or propylene oxide (II) with Nd(P2O4)3-iso-Bu3Al-H2O catalysts follows first-order kinetics with respect to either monomer or catalysts. The activation energy of polymn. of I or II is 48.9 or 61.3 kJ/mol, resp. The polymn. rate is affected by the Al/Nd or H2O/Al ratio and the catalyst compn. The catalytic activity for different catalysts decreases in the order Nd > La > Dy > Yb > Eu; iso-Bu3Al > AlEt3; and for the ligands acetylacetone > (RO)2P(O)O > R(RO)P(O)O > naphthenic acid radical where R = BuCHEtCH2.

ST **ring opening polymn methyloxirane**
 epichlorohydrin; catalyst kinetics polymn epihydrin epichlorohydrin; rare earth catalyst kinetics polymn; aluminum catalyst polymn epihydrin epichlorohydrin; acetylacetone catalyst polymn epihydrin epichlorohydrin; naphthenate catalyst polymn epihydrin epichlorohydrin; phosphonate catalyst polymn epihydrin epichlorohydrin; propylene oxide polymn kinetics; neodymium catalyst polymn **alkylene oxide**

IT Rare earth metals, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

IT Kinetics of polymerization
 (**ring-opening**, of epichlorohydrin or propylene oxide in presence of rare earth metal catalysts)

IT Polymerization catalysts
 (**ring-opening**, rare earth metal-triisobutylaluminum-water, for propylene oxide or epichlorohydrin, kinetics in relation to)

IT 97-93-8, Triethylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. rare earth compds. and water, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

IT 100-99-2, Triisobutylaluminum, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. rare earth metal complex and water, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

IT 7732-18-5, Water, uses
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and rare earth metal complex, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

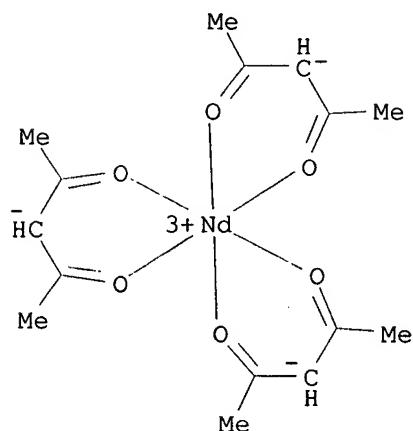
IT 7440-00-8D, Neodymium, naphthenates 14589-38-9
 38326-04-4 38326-05-5 45324-92-3
 45324-95-6 79321-05-4 79950-28-0
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

IT 75-56-9, reactions 106-89-8, Epichlorohydrin, reactions
 RL: RCT (Reactant)
 (**ring-opening** polymn. of, rare earth metal catalysts for, kinetics in relation to)

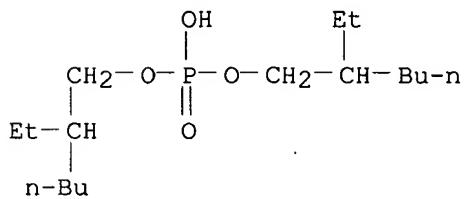
IT 14589-38-9 38326-04-4 38326-05-5
 45324-92-3 45324-95-6 79321-05-4
 79950-28-0
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of propylene oxide or epichlorohydrin, kinetics in relation to)

RN 14589-38-9 HCPLUS

CN Neodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

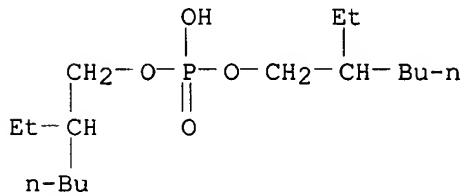


RN 38326-04-4 HCAPLUS
CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



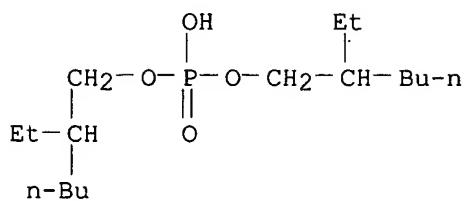
●1/3 Nd(III)

RN 38326-05-5 HCAPLUS
CN Phosphoric acid, bis(2-ethylhexyl) ester, ytterbium(3+) salt (9CI) (CA INDEX NAME)



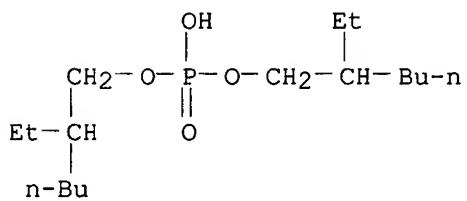
●1/3 Yb(III)

RN 45324-92-3 HCAPLUS
CN Phosphoric acid, bis(2-ethylhexyl) ester, dysprosium(3+) salt (9CI) (CA INDEX NAME)



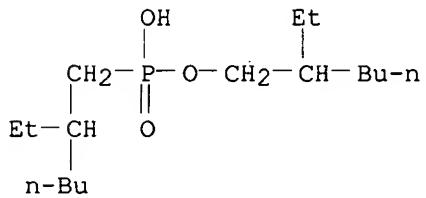
●1/3 Dy(III)

RN 45324-95-6 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, lanthanum(3+) salt (9CI) (CA
 INDEX NAME)



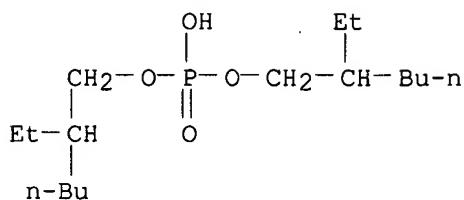
●1/3 La(III)

RN 79321-05-4 HCAPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



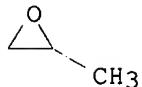
●1/3 Nd(III)

RN 79950-28-0 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, europium(3+) salt (9CI) (CA INDEX NAME)

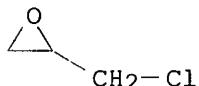


●1/3 Eu(III)

IT 75-56-9, reactions 106-89-8, Epichlorohydrin, reactions
 RL: RCT (Reactant)
 (ring-opening polymn. of, rare earth metal
 catalysts for, kinetics in relation to)
 RN 75-56-9 HCAPLUS
 CN Oxirane, methyl- (9CI) (CA INDEX NAME)



RN 106-89-8 HCAPLUS
 CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 32 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1991:123110 HCAPLUS
 DN 114:123110
 TI Ring opening polymerization of propylene sulfide by
 rare earth coordination catalysts
 AU Shen, Zhiqian; Zhang, Yifeng; Peng, Jiande; Ling, Long
 CS Dep. Chem., Zhejiang Univ., Hangzhou, 310027, Peop. Rep. China
 SO Sci. China, Ser. B (1990), 33(5), 553-61
 CODEN: SCBSE5
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB Ternary catalysts contg. phosphonate, naphthenate, or acetylacetone rare
 earth compd., trialkylaluminum, and water were effective for the
 ring-opening polymn. of propylene sulfide. The polymn.
 in PhMe was homogeneous. Poly(propylene sulfide) (I) with mol. wt. of
 several million was obtained in high yield. The polymn. rate was first
 order with respect to both monomer and catalyst concns. The activation
 energy of polymn. was 61.4 kJ/mol. I was characterized by ¹³C-NMR, x-ray
 diffraction, gel-permeation chromatog., and DSC.
 ST propylene sulfide polymn catalyst kinetics; rare earth catalyst polymn
 propylene sulfide; polythiopropylene prepn rare earth catalyst
 IT Kinetics of polymerization

(coordination, **ring-opening**, of propylene sulfide,
in presence of rare earth-trialkylaluminum-water catalysts)

IT Polymerization catalysts
(coordination, **ring-opening**, rare earth compds.
contg. trialkylaluminum and water, for propylene sulfide)

IT Naphthenic acids, compounds
RL: CAT (Catalyst use); USES (Uses)
(neodymium salts, catalysts, contg. trialkylaluminum and water, for
ring-opening polymn. of propylene sulfide)

IT Polyethers, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(thio-, prepn. of, in presence of rare earth-water-trialkylaluminum
catalysts)

IT 97-93-8, Triethylaluminum, uses and miscellaneous 100-99-2,
Triisobutylaluminum, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. rare earth compds. and water, for **ring-**
opening polymn. of propylene sulfide)

IT 7732-18-5, Water, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. trialkylaluminum and rare earth compds. and, for
ring-opening polymn. of propylene sulfide)

IT 7440-00-8D, Neodymium, naphthenates 14589-38-9
38326-04-4 38326-05-5 45324-92-3
45324-94-5 45324-95-6 45324-97-8
79321-05-4 79950-28-0 79950-29-1
79950-31-5 79950-32-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. trialkylaluminum and water, for **ring-**
opening polymn. of propylene sulfide)

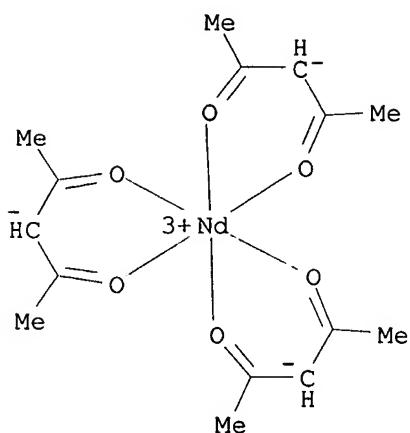
IT 1072-43-1, Propylene sulfide
RL: RCT (Reactant)
(polymn. of, **ring-opening**, in presence of rare
earth and trialkylaluminum catalysts, kinetics of)

IT 9064-17-9P, Poly[thio(methyl-1,2-ethanediyl)] 25037-97-2P, Propylene
sulfide homopolymer
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, in presence of rare earth and trialkylaluminum catalysts)

IT 14589-38-9 38326-04-4 38326-05-5
45324-92-3 45324-94-5 45324-95-6
45324-97-8 79321-05-4 79950-28-0
79950-29-1 79950-31-5 79950-32-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. trialkylaluminum and water, for **ring-**
opening polymn. of propylene sulfide)

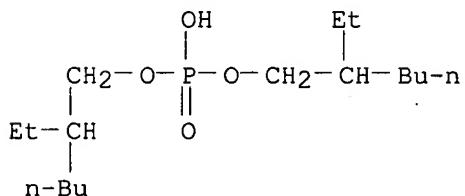
RN 14589-38-9 HCPLUS

CN Neodymium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



RN 38326-04-4 HCPLUS

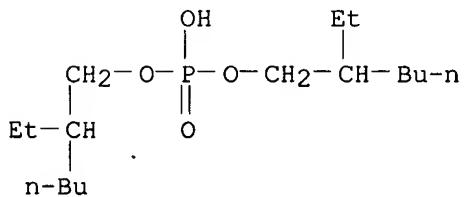
CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Nd(III)

RN 38326-05-5 HCPLUS

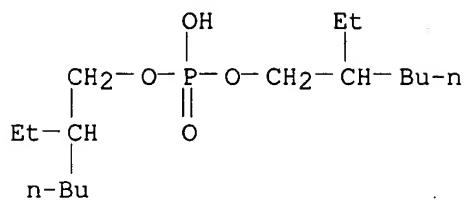
CN Phosphoric acid, bis(2-ethylhexyl) ester, ytterbium(3+) salt (9CI) (CA INDEX NAME)



● 1/3 Yb(III)

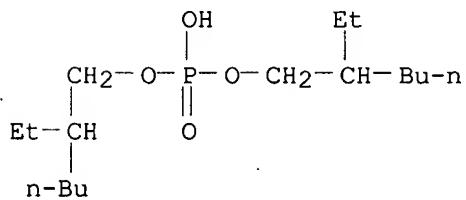
RN 45324-92-3 HCPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, dysprosium(3+) salt (9CI) (CA INDEX NAME)



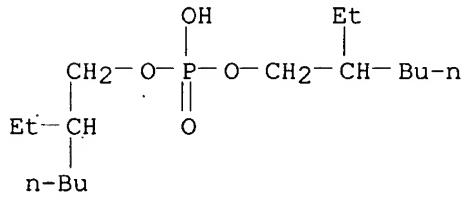
●1/3 Dy(III)

RN 45324-94-5 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, holmium(3+) salt (9CI) (CA
 INDEX NAME)



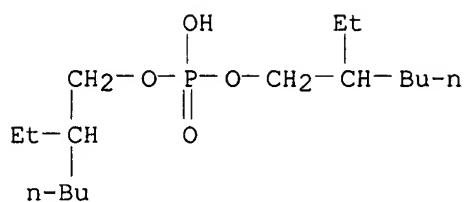
●1/3 Ho(III)

RN 45324-95-6 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, lanthanum(3+) salt (9CI) (CA
 INDEX NAME)



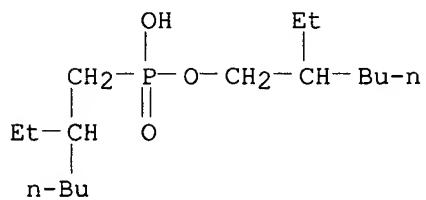
●1/3 La(III)

RN 45324-97-8 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, praseodymium(3+) salt (9CI) (CA
 INDEX NAME)



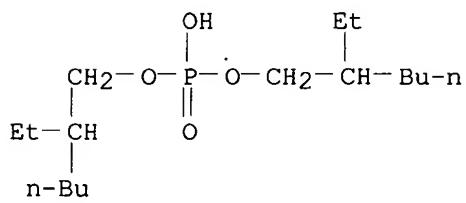
● 1/3 Pr(III)

RN 79321-05-4 HCAPLUS
 CN Phosphonic acid, (2-ethylhexyl)-, mono(2-ethylhexyl) ester, neodymium(3+)
 salt (9CI) (CA INDEX NAME)



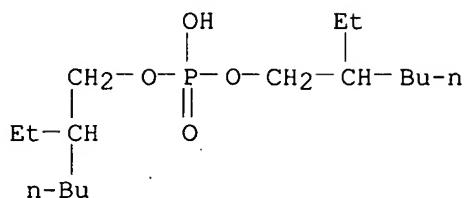
● 1/3 Nd(III)

RN 79950-28-0 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, europium(3+) salt (9CI) (CA
 INDEX NAME)



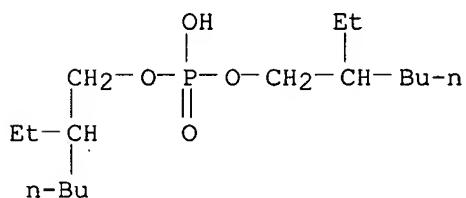
● 1/3 Eu(III)

RN 79950-29-1 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, gadolinium(3+) salt (9CI) (CA
 INDEX NAME)



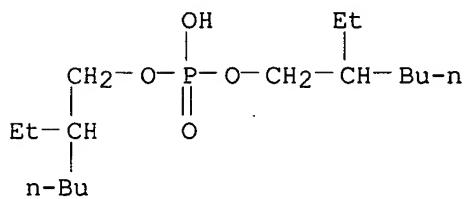
●1/3 Gd(III)

RN 79950-31-5 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, erbium(3+) salt (9CI) (CA INDEX NAME)



●1/3 Er(III)

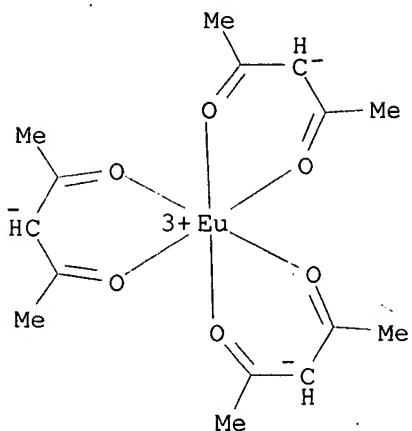
RN 79950-32-6 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, lutetium(3+) salt (9CI) (CA INDEX NAME)



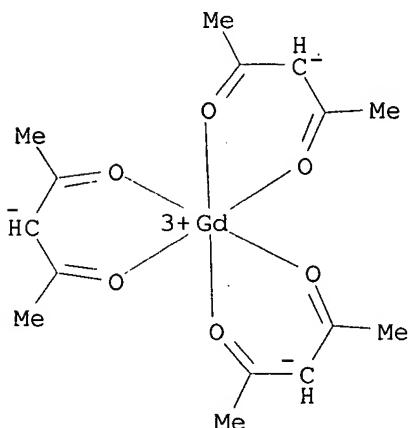
●1/3 Lu(III)

L28 ANSWER 33 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1990:424577 HCAPLUS
 DN 113:24577
 TI New catalyst systems of rare earth acetylacetone/partially hydrolyzed triethylaluminum (AlEt₃-1/2H₂O) for polymerization of propylene oxide
 AU Wu, Jian; Shen, Zhiqian
 CS Chem. Dep., Zhejiang Univ., Hangzhou, Peop. Rep. China
 SO J. Polym. Sci., Part A: Polym. Chem. (1990), 28(7), 1995-7
 CODEN: JPACEC; ISSN: 0887-624X

DT Journal
LA English
CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36
AB Coordination compds. of AlEt₃.cntdot.0.5H₂O with acetylacetones of 10 rare earth metals were used as polymn. catalysts for propylene oxide (I). The Al-rare earth ratio influenced both the yield and mol. wt. of the I polymer. The light rare-earth co-ordination catalysts yielded very high-mol.-wt. poly-I samples; coordination complexes with Nd were the most potent. Rates of polymn., and optimum polymn. conditions for the catalyst system based on Nd were presented. NMR anal. showed the cryst. fraction of the resulting poly-I to be highly isotactic; the presence of almost pure head-to-tail polymer suggested a .beta.-opening of the **oxirane ring**.
ST acetylacetone rare earth polymn catalyst; ethyl aluminum coordination polymn catalyst; propylene oxide polymn rare earth; neodymium ethyl aluminum polymn catalyst
IT Polymerization catalysts
(rare earth metal acetylacetone-triethylaluminum, for propylene oxide)
IT Rare earth metals, compounds
RL: CAT (Catalyst use); USES (Uses)
(acetylacetone complexes, catalysts, contg. hydrolyzed triethylaluminum, for polymn. of propylene oxide)
IT 97-93-8, Triethyl aluminum, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. rare earth metal acetylacetones, for polymn. of propylene oxide)
IT 14284-86-7 14284-87-8 14284-88-9
14284-98-1 14553-09-4 14589-33-4
14589-38-9 14589-42-5 14637-88-8
15554-47-9, Yttrium acetylacetone
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triethylaluminum, for polymn. of propylene oxide)
IT 26046-17-3P, Isotactic poly(propylene oxide)
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, from rare earth metal acetylacetone-triethylaluminum catalysts)
IT 14284-86-7 14284-87-8 14284-88-9
14284-98-1 14553-09-4 14589-33-4
14589-38-9 14589-42-5 14637-88-8
15554-47-9, Yttrium acetylacetone
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triethylaluminum, for polymn. of propylene oxide)
RN 14284-86-7 HCPLUS
CN Europium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

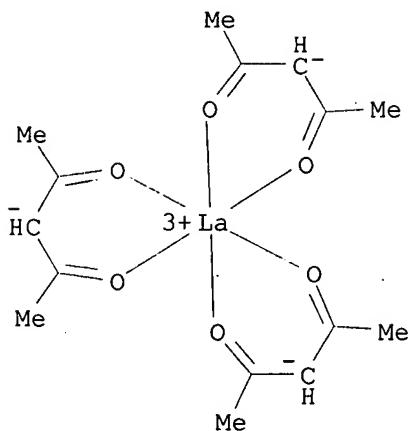


RN 14284-87-8 HCPLUS

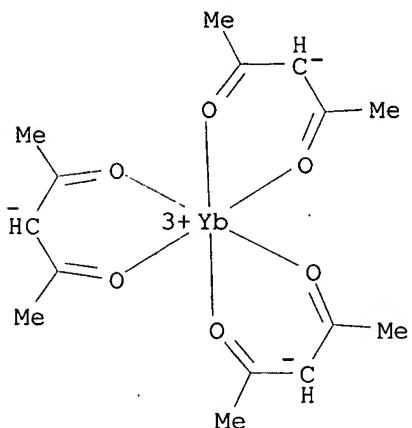
CN Gadolinium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

RN 14284-88-9 HCPLUS

CN Lanthanum, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

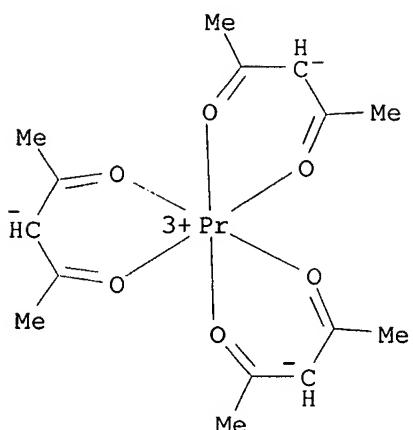


RN 14284-98-1 HCPLUS

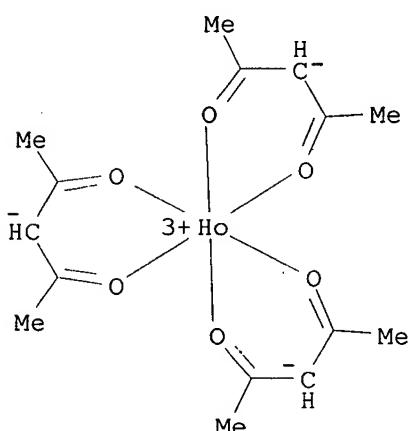
CN Ytterbium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

RN 14553-09-4 HCPLUS

CN Praseodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)-
(9CI) (CA INDEX NAME)

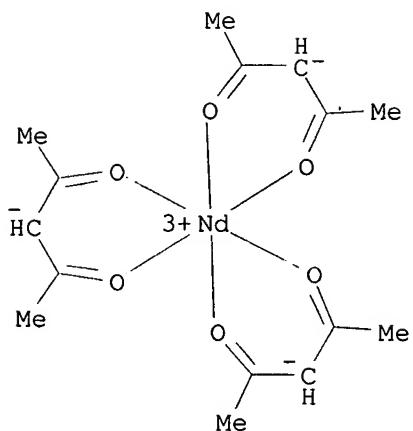


RN 14589-33-4 HCPLUS

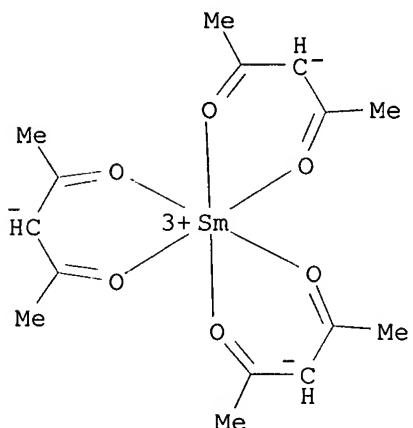
CN Holmium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

RN 14589-38-9 HCPLUS

CN Neodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

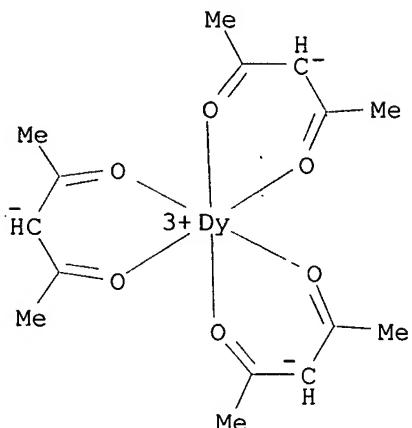


RN 14589-42-5 HCPLUS

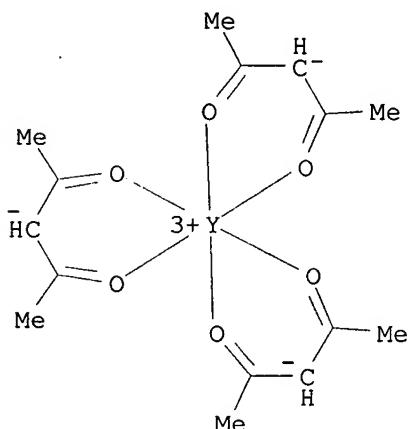
CN Samarium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

RN 14637-88-8 HCPLUS

CN Dysprosium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



RN 15554-47-9 HCPLUS

CN Yttrium, tris(2,4-pentanedionato-κO,κO')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

L28 ANSWER 34 OF 38 HCPLUS COPYRIGHT 2001 ACS

AN 1990:424567 HCPLUS

DN 113:24567

TI Rare earth coordination catalysts for the polymerization of alkylene oxides. I. Polymerization of epichlorohydrin

AU Wu, Jian; Shen, Zhiqian

CS Chem. Dep., Zhejiang Univ., Hangzhou, Peop. Rep. China

SO Polym. J. (Tokyo) (1990), 22(4), 326-30

CODEN: POLJB8; ISSN: 0032-3896

DT Journal

LA English

CC 35-3 (Chemistry of Synthetic High Polymers)

AB Acetylacetones (acac) of 9 rare earth elements, combined with iso-Bu3Al and H2O, were used as catalysts for the polymn. of epichlorohydrin (I). The Nd(acac)3-iso-Bu3Al-H2O system was a favorable catalyst for polymn. with respect to prep. polymer with high mol. wt. and low crystallinity. The polymn. of I with Nd(acac)3 catalyst was investigated concerning the dependence of polymn. catalyst compon., i.e., Al/Nd and H2O/Al molar ratios, polymn. time, and solvent, etc. THF polymn. catalyzed by

Nd(acac)₃ was also performed to check the character of the catalyst system. The bimetallic nature of the catalyst was discussed.

ST THF epichlorohydrin polymn catalyst; rare earth catalyst polymn

IT Polyoxalkylenes, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, catalysts for, contg. rare earth acetylacetones)

IT Reactivity ratio in polymerization
(anionic, **ring-opening**, of allyl glycidyl ether
with epichlorohydrin and propylene oxide)

IT Polymerization catalysts
(anionic, **ring-opening**, rare earth metal
acetylacetone-isobutylaluminum-water, for epichlorohydrin)

IT 14284-86-7, Tris(acetylacetato)europium 14284-87-8,
Tris(acetylacetato)gadolinium 14284-88-9,
Tris(acetylacetato)lanthanum 14284-98-1,
Tris(acetylacetato)ytterbium 14553-09-4,
Tris(acetylacetato)praseodymium 14589-38-9,
Tris(acetylacetato)neodymium 14589-42-5,
Tris(acetylacetato)samarium 14637-88-8,
Tris(acetylacetato)dysprosium 15554-47-9,
Tris(acetylacetato)yttrium
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, contg. isobutylaluminum and water, for polymn. of
epichlorohydrin)

IT 7732-18-5, Water, uses and miscellaneous
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, contg. rare earth acetylacetones and isobutylaluminum,
for polymn. of epichlorohydrin)

IT 100-99-2, uses and miscellaneous
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, contg. rare earth acetylacetones and water, for polymn.
of epichlorohydrin)

IT 75-56-9, reactions 106-89-8, reactions
RL: RCT (Reactant)
(polymn. of, with allyl glycidyl ether, reactivity ratio in)

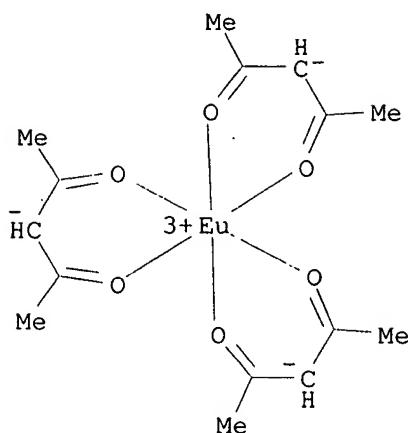
IT 106-92-3
RL: RCT (Reactant)
(polymn. of, with epichlorohydrin or propylene oxide, reactivity ratios
in)

IT 24969-06-0P, Polyepichlorohydrin 61710-61-0P,
Poly[oxy[(chloromethyl)-1,2-ethanediyl]]
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, catalysts for)

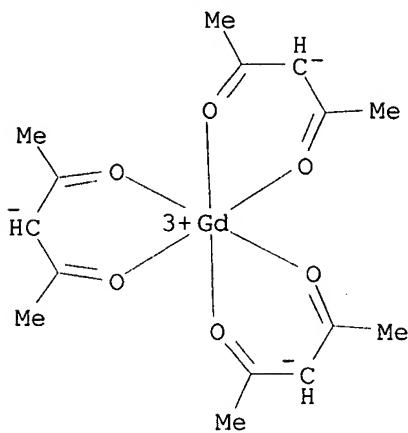
IT 14284-86-7, Tris(acetylacetato)europium 14284-87-8,
Tris(acetylacetato)gadolinium 14284-88-9,
Tris(acetylacetato)lanthanum 14284-98-1,
Tris(acetylacetato)ytterbium 14553-09-4,
Tris(acetylacetato)praseodymium 14589-38-9,
Tris(acetylacetato)neodymium 14589-42-5,
Tris(acetylacetato)samarium 14637-88-8,
Tris(acetylacetato)dysprosium 15554-47-9,
Tris(acetylacetato)yttrium
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, contg. isobutylaluminum and water, for polymn. of
epichlorohydrin)

RN 14284-86-7 HCPLUS

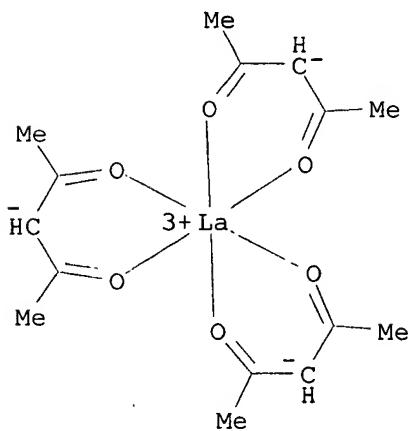
CN Europium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



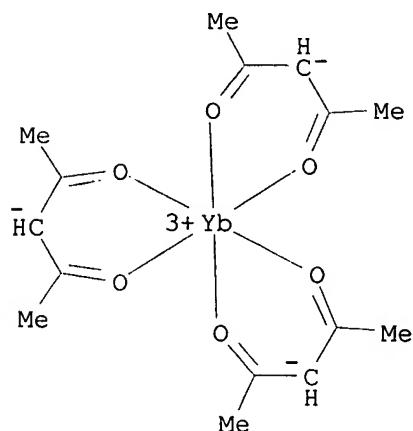
RN 14284-87-8 HCAPLUS

CN Gadolinium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

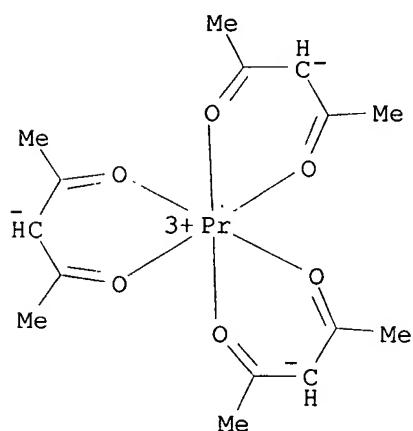
RN 14284-88-9 HCAPLUS

CN Lanthanum, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

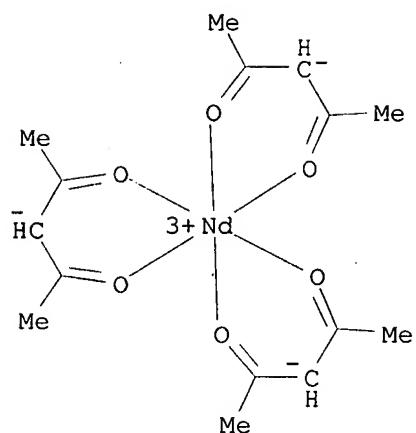
RN 14284-98-1 HCAPLUS
 CN Ytterbium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)



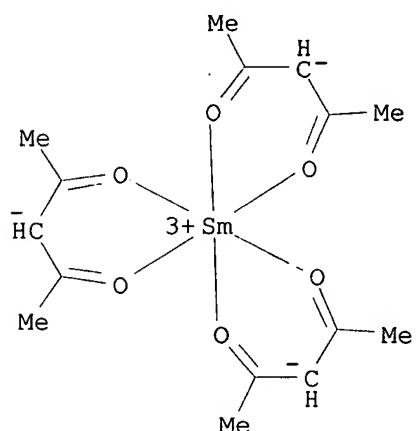
RN 14553-09-4 HCAPLUS
 CN Praseodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)-
 (9CI) (CA INDEX NAME)



RN 14589-38-9 HCAPLUS
 CN Neodymium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
 (CA INDEX NAME)

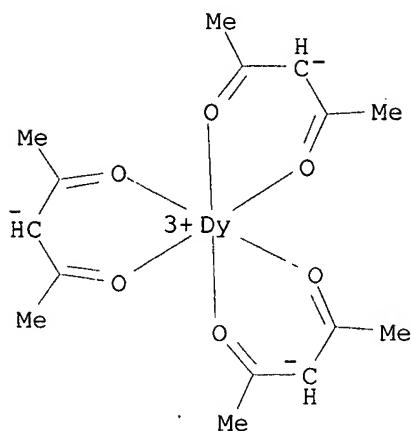


RN 14589-42-5 HCPLUS

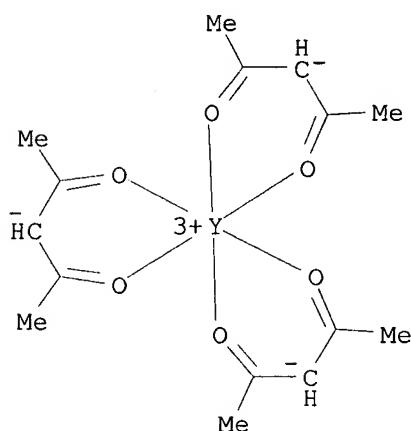
CN Samarium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

RN 14637-88-8 HCPLUS

CN Dysprosium, tris(2,4-pentanedionato-.kappa.O, .kappa.O')-, (OC-6-11)- (9CI)
(CA INDEX NAME)



RN 15554-47-9 HCPLUS

CN Yttrium, tris(2,4-pentanedionato-κO,κO')-, (OC-6-11)- (9CI)
(CA INDEX NAME)

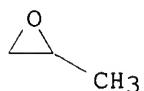
IT 75-56-9, reactions 106-89-8, reactions

RL: RCT (Reactant)

(polymn. of, with allyl glycidyl ether, reactivity ratio in)

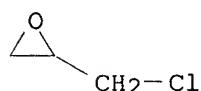
RN 75-56-9 HCPLUS

CN Oxirane, methyl- (9CI) (CA INDEX NAME)

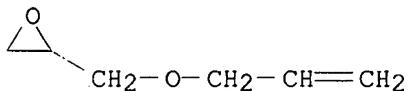


RN 106-89-8 HCPLUS

CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)



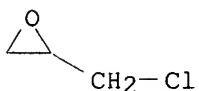
IT 106-92-3
 RL: RCT (Reactant)
 (polymn. of, with epichlorohydrin or propylene oxide, reactivity ratios
 in)
 RN 106-92-3 HCAPLUS
 CN Oxirane, [(2-propenyloxy)methyl]- (9CI) (CA INDEX NAME)



IT 24969-06-0P, Polyepichlorohydrin
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for)
 RN 24969-06-0 HCAPLUS
 CN Oxirane, (chloromethyl)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8
 CMF C₃ H₅ Cl O



L28 ANSWER 35 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1990:56806 HCAPLUS
 DN 112:56806
 TI Kinetics and mechanism of **ring-opening** polymerization
 of epichlorohydrin in the presence of rare earth coordination catalyst
 system
 AU Sun, Junquan; Hu, Peizhan; Shen, Zhiqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
 SO Cuihua Xuebao (1989), 10(3), 301-8
 CODEN: THHPD3; ISSN: 0253-9837
 DT Journal
 LA Chinese
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB The kinetics of **ring-opening** polymn. of
 epichlorohydrin in the presence of Nd(P2O₄)₃-Al(iso-Bu)₃-H₂O catalyst
 system was studied. The polymn. rate of propagation was zero order with
 respect to the monomer concn. and first order with respect to the catalyst
 concn. The activation energy of polymn. was 37.4 kJ/mol. The initiation
 step was instantaneous and the termination was a bimol. process in polymn.
 under the given conditions.
 ST epichlorohydrin **ring opening** polymn; kinetics
 epichlorohydrin **ring opening** polymn; mechanism
 epichlorohydrin **ring opening** polymn; neodymium polymn
 catalyst epichlorohydrin; aluminum triisobutyl polymn catalyst
 epichlorohydrin; water polymn catalyst epichlorohydrin
 IT Polymerization catalysts
 (**ring-opening**, aluminum-neodymium-water, for
 epichlorohydrin, kinetics and mechanism in relation to)

IT Kinetics of polymerization
 (ring-opening, of epichlorohydrin, in presence of
 aluminum-neodymium-water system)

IT Polymerization
 (ring-opening, of epichlorohydrin, in presence of
 aluminum-neodymium-water system, mechanism of)

IT 7732-18-5, Water, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. neodymium and triisobutylaluminum, for ring
 opening polymn. of epichlorohydrin, kinetics and mechanism
 in relation to)

IT 100-99-2, Triisobutylaluminum, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. neodymium and water, for ring-
 opening polymn. of epichlorohydrin, kinetics and mechanism in
 relation to)

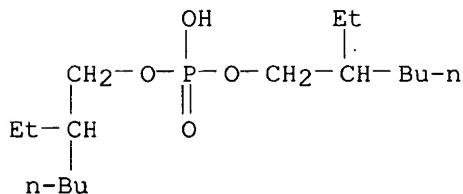
IT 38326-04-4
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for ring-
 opening polymn. of epichlorohydrin, kinetics and mechanism in
 relation to)

IT 106-89-8, Epichlorohydrin, reactions
 RL: RCT (Reactant)
 (ring-opening polymn. of, in presence of
 aluminum-neodymium-water system, kinetics and mechanism of)

IT 38326-04-4
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for ring-
 opening polymn. of epichlorohydrin, kinetics and mechanism in
 relation to)

RN 38326-04-4 HCAPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA
 INDEX NAME)

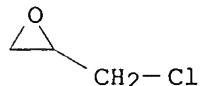


●1/3 Nd(III)

IT 106-89-8, Epichlorohydrin, reactions
 RL: RCT (Reactant)
 (ring-opening polymn. of, in presence of
 aluminum-neodymium-water system, kinetics and mechanism of)

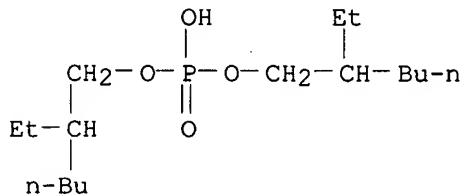
RN 106-89-8 HCAPLUS

CN Oxirane, (chloromethyl)- (9CI) (CA INDEX NAME)



L28 ANSWER 36 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 1989:614987 HCAPLUS
DN 111:214987
TI **Ethylene oxide** polymerization using rare-earth coordination catalysts
AU Zhang, Yifeng; Shen, Zhiqian
CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
SO Gaofenzi Xuebao (1988), (6), 469-73
CODEN: GAXUE9; ISSN: 1000-3304
DT Journal
LA Chinese
CC 35-3 (Chemistry of Synthetic High Polymers)
AB **Ring-opening** polymn. of **ethylene oxide** (**I**) was studied using Nd(P2O4)3-Al(iso-Bu)3-water catalyst in PhMe. The catalytic activity of the rare-earth coordination catalyst and viscosity-av. mol. wt. of poly(**ethylene oxide**) were high. The overall polymn. activation energy was 33.8 kJ/mol and the rate equation could be expressed as $R_p = K_p [I] [Nd(P2O4)3]$, where $K_p = 1.67 \cdot 10^{-3} \text{ mol}^{-1} \text{ s}^{-1}$.
ST neodymium polymn catalyst **oxirane**; aluminum triisobutyl polymn catalyst **oxirane**; water polymn catalyst **oxirane**; polyoxyethylene prepn catalyst neodymium; kinetics polymn **oxirane** neodymium; phosphonate neodymium polymn catalyst **oxirane**
IT Polymerization catalysts
(**ring-opening**, neodymium bis(ethylhexyl) phosphonate-triisobutylaluminum-water, for **ethylene oxide**, kinetics in relation to)
IT Kinetics of polymerization
(**ring-opening**, of **ethylene oxide**, in presence of neodymium bis(ethylhexyl) phosphonate-triisobutylaluminum-water systems)
IT 7732-18-5, Water, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. neodymium bis(ethylhexyl) phosphonate and triisobutylaluminum, for **ring-opening** polymn. of ethylene, kinetics in relation to)
IT 100-99-2, Triisobutylaluminum, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. neodymium bis(ethylhexyl) phosphonate and water, for **ring-opening** polymn. of ethylene, kinetics in relation to)
IT 38326-04-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of ethylene, kinetics in relation to)
IT 75-21-8, **Ethylene oxide**, reactions
RL: RCT (Reactant)
(polymn. of, **ring-opening**, in presence of neodymium bis(ethylhexyl) phosphonate-triisobutylaluminum-water systems, kinetics of)
IT 25322-68-3P, Poly(**ethylene oxide**)
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, catalysts for, neodymium bis(ethylhexyl) phosphonate-triisobutylaluminum-water system as)
IT 38326-04-4
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of ethylene, kinetics in relation to)

RN 38326-04-4 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) ester, neodymium(3+) salt (9CI) (CA
 INDEX NAME)



● 1/3 Nd(III)

IT 75-21-8, Ethylene oxide, reactions
 RL: RCT (Reactant)
 (polymn. of, ring-opening, in presence of neodymium
 bis(ethylhexyl) phosphonate-triisobutylaluminum-water systems, kinetics
 of)
 RN 75-21-8 HCAPLUS
 CN Oxirane (9CI) (CA INDEX NAME)



L28 ANSWER 37 OF 38 HCAPLUS COPYRIGHT 2001 ACS
 AN 1989:193446 HCAPLUS
 DN 110:193446
 TI Ring opening polymerization of ethylene
 oxide by the Y(P2O4)3-triisobutylaluminum-water catalyst
 AU Zhang, Yifeng; Chen, Xianhai; Shen, Zhiqian
 CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
 SO Inorg. Chim. Acta (1989), 155(2), 263-5
 CODEN: ICHAA3; ISSN: 0020-1693
 DT Journal
 LA English
 CC 35-3 (Chemistry of Synthetic High Polymers)
 AB The title polymn. activity is strongly dependent upon the molar ratio of
 the 3 components in the catalyst and polymn. conditions. This catalyst
 gives high-mol.-wt. poly(ethylene oxide) with a high
 reaction rate and a high yield. The poly(ethylene oxide)
 was characterized by IR spectrophotometry, DSC, and x-ray diffraction.
 ST ethylene oxide polymn catalyst; yttrium phosphorus
 isobutylaluminum water catalyst; polyoxyethylene prepn catalyst
 IT Polymerization catalysts
 (ring-opening, yttrium phosphate-
 triisobutylaluminum-water, for ethylene oxide)
 IT 38326-06-6
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for ring-
 opening polymn. of ethylene oxide)
 IT 7732-18-5, Water, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)

(catalysts, contg. yttrium phosphate and triisobutylaluminum, for ring-opening polymn. of ethylene oxide)

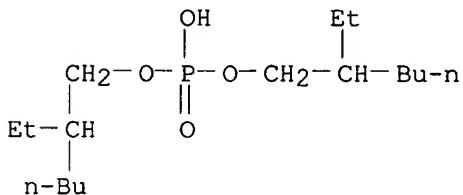
IT 100-99-2, Triisobutylaluminum, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. yttrium phosphate and water, for ring-opening polymn. of ethylene oxide)

IT 25322-68-3P, Poly(ethylene oxide)
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, catalysts for, yttrium phosphate-triisobutylaluminum-water system as)

IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum and water, for ring-opening polymn. of ethylene oxide)

RN 38326-06-6 HCAPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



●1/3 Y(III)

L28 ANSWER 37 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 1989:193446 HCAPLUS
DN 110:193446

TI Ring opening polymerization of ethylene oxide by the Y(P2O4)3-triisobutylaluminum-water catalyst
AU Zhang, Yifeng; Chen, Xianhai; Shen, Zhiqian
CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
SO Inorg. Chim. Acta (1989), 155(2), 263-5
CODEN: ICHAA3; ISSN: 0020-1693

DT Journal
LA English
CC 35-3 (Chemistry of Synthetic High Polymers)
AB The title polymn. activity is strongly dependent upon the molar ratio of the 3 components in the catalyst and polymn. conditions. This catalyst gives high-mol.-wt. poly(ethylene oxide) with a high reaction rate and a high yield. The poly(ethylene oxide) was characterized by IR spectrophotometry, DSC, and x-ray diffraction.
ST ethylene oxide polymn catalyst; yttrium phosphorus isobutylaluminum water catalyst; polyoxyethylene prep catalyst
IT Polymerization catalysts
(ring-opening, yttrium phosphate-triisobutylaluminum-water, for ethylene oxide)
IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
(catalysts, contg. triisobutylaluminum and water, for ring-

opening polymn. of ethylene oxide)

IT 7732-18-5, Water, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. yttrium phosphate and triisobutylaluminum, for
 ring-opening polymn. of ethylene
 oxide)

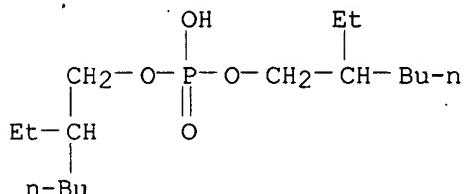
IT 100-99-2, Triisobutylaluminum, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. yttrium phosphate and water, for ring-
 opening polymn. of ethylene oxide)

IT 25322-68-3P, Poly(ethylene oxide)
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, yttrium phosphate-triisobutylaluminum-water
 system as)

IT 38326-06-6
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for ring-
 opening polymn. of ethylene oxide)

RN 38326-06-6 HCPLUS

CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA
 INDEX NAME)



●1/3 Y(III)

COMMAND INTERRUPTED
 REENTER FILE 'HCPLUS'
 AND TRY AGAIN, OR ENTER '?' FOR MORE INFORMATION.

Your command did not complete due to a temporary system problem. To recover, reenter the file you are in now. Then, any command that is normally available to you may be used. No cost summary for the current file will be displayed. After reentering the current file you may retry your command. Also, you may wish to SAVE your search query. This can be done in any file. If you cannot access your current file, or if your command fails a second time, notify the Help Desk. Enter "HELP STN" for information on contacting the nearest STN Help Desk by telephone or by using the SEND command in STNMAIL file.

=>

IS NOT A RECOGNIZED COMMAND
 The previous command name entered was not recognized by the system.
 For a list of commands available to you in the current file, enter
 "HELP COMMANDS" at an arrow prompt (=>).

=>

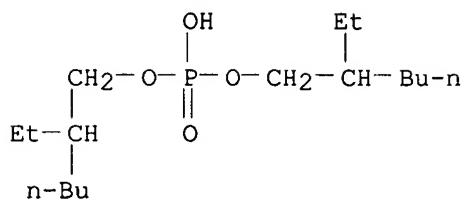
IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

<=>

<=> D L28 37-38 ALL HITSTR

L28 ANSWER 37 OF 38 HCAPLUS COPYRIGHT 2001 ACS
AN 1989:193446 HCAPLUS
DN 110:193446
TI Ring opening polymerization of **ethylene oxide** by the Y(P204)3-triisobutylaluminum-water catalyst
AU Zhang, Yifeng; Chen, Xianhai; Shen, Zhiqian
CS Dep. Chem., Zhejiang Univ., Hangzhou, Peop. Rep. China
SO Inorg. Chim. Acta (1989), 155(2), 263-5
CODEN: ICHAA3; ISSN: 0020-1693
DT Journal
LA English
CC 35-3 (Chemistry of Synthetic High Polymers)
AB The title polymn. activity is strongly dependent upon the molar ratio of the 3 components in the catalyst and polymn. conditions. This catalyst gives high-mol.-wt. poly(**ethylene oxide**) with a high reaction rate and a high yield. The poly(**ethylene oxide**) was characterized by IR spectrophotometry, DSC, and x-ray diffraction.
ST **ethylene oxide** polymn catalyst; yttrium phosphorus isobutylaluminum water catalyst; polyoxyethylene prepn catalyst
IT Polymerization catalysts
 (**ring-opening**, yttrium phosphate-triisobutylaluminum-water, for **ethylene oxide**)
IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of **ethylene oxide**)
IT 7732-18-5, Water, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. yttrium phosphate and triisobutylaluminum, for **ring-opening** polymn. of **ethylene oxide**)
IT 100-99-2, Triisobutylaluminum, uses and miscellaneous
RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. yttrium phosphate and water, for **ring-opening** polymn. of **ethylene oxide**)
IT 25322-68-3P, Poly(**ethylene oxide**)
RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of, catalysts for, yttrium phosphate-triisobutylaluminum-water system as)
IT 38326-06-6
RL: CAT (Catalyst use); USES (Uses)
 (catalysts, contg. triisobutylaluminum and water, for **ring-opening** polymn. of **ethylene oxide**)
RN 38326-06-6 HCAPLUS
CN Phosphoric acid, bis(2-ethylhexyl) ester, yttrium(3+) salt (9CI) (CA INDEX NAME)



●1/3 Y(III)

L28 ANSWER 38 OF 38 HCAPLUS COPYRIGHT 2001 ACS

AN 1971:43074 HCAPLUS

DN 74:43074

TI Cationic polymerization of polymerizable monomers by use of latent catalysts

IN Kropp, James E.; Allen, Michael George; Warren, George W. B.

PA Minnesota Mining and Manufg. Co.

SO Ger. Offen., 42 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C08F

CC 36 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI DE 2012013 19701008

PRAI US 19690314

AB Olefinic or **ring-opening** monomers contg. N or O are polymd. using latent polymn. catalysts, which are noncorrosive toward metals and can be activated by heat or uv irradn., and comprise bis(trifluoromethylsulfonyl) compds., their amine or metal salts, or their clathrate compds. Thus, bisphenol A diglycidyl ether contg. 5% (CF₃SO₂)₂CHAg hardened in 15 min when exposed to uv light, but hardened in 1 month at room temp. Other monomers polymd. include novolak vinyl ethers, diethylene glycol divinyl ether, N-vinylpyrrolidinone, trioxane, N-(carbethoxymethyl)aziridine, and bis(3,4-**epoxy**-6-methylcyclohexylmethyl) adipate. Among the latent curing catalysts used in 32 examples are: (CF₃SO₂)₂CHK, [(CF₃SO₂)₂CH]₂Ni, (CF₃SO₂)₂CH (I), the clathrate of I with Dianin's compd., and the guanidine, pyridine, and Et₃N salts of I. Accelerators include 2,4-tolylene diisocyanate and bis[3-tertbutyl-5-methyl-2-(phenylcarbamoyloxy)phenyl]methane.

ST cationic polymn **epoxides**; **epoxides** cationic polymn; catalysts latent polymn **epoxides**; latent catalysts polymn **epoxides**; sulfonyl perfluoralkyl catalysts; perfluoralkyl sulfonyl catalysts; vinyl compd polymn; accelerators polymn

IT Sulfones

RL: USES (Uses)

(bis(trifluoromethyl), salts, polymn. catalysts, activated by heat and uv irradiation)

IT Polymerization catalysts

(bis[(trifluoromethyl)sulfonyl] compds., activated by heat and uv irradiation)

IT Crosslinking catalysts

(bis[(trifluoromethyl)sulfonyl] compds., for **epoxy** resins)

IT Resins, **epoxy**, reactions
RL: RCT (Reactant)
(crosslinking of, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT Ethers
RL: USES (Uses)
(cyclic, polymn. of, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT Polyoxymethylenes, preparation
RL: PREP (Preparation)
(from trioxane, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT Amines, compounds
RL: USES (Uses)
(salts with bis[(trifluoromethyl)sulfonyl] compds., polymn. catalysts, activated by heat and uv irradiation)

IT Carbanilic acid, esters
RL: USES (Uses)
(accelerators, for bis[(trifluoromethyl)sulfonyl] polymn. catalysts)

IT Phenol condensation products
RL: USES (Uses)
(**epoxypropyl** and vinyl ethers, polymn. of, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT 103-71-9 584-84-9 31323-03-2
RL: USES (Uses)
(accelerators, for bis[(trifluoromethyl)sulfonyl] polymn. catalysts)

IT 428-76-2 31253-33-5 31322-86-8 31322-87-9 31322-88-0 31322-89-1
31322-90-4 **31322-91-5** 31322-93-7 31322-96-0 31322-97-1
31322-98-2 31322-99-3 31323-00-9 31323-01-0 31323-02-1
33249-12-6
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for polymn. of **epoxy** compds.)

IT 30354-25-7 30354-38-2 31322-84-6
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for polymn., activated by heat and uv irradiation)

IT 31322-94-8 31322-95-9
RL: USES (Uses)
(clathrate, catalysts, for polymn. of **epoxy** compds.)

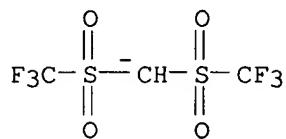
IT 9003-39-8P **25068-38-6P** 25085-98-7P 25086-23-1P 25215-94-5P
29616-42-0P 30352-77-3P 31244-41-4P **31244-44-7P**
RL: PREP (Preparation)
(prepn. of, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT 29797-71-5P
RL: PREP (Preparation)
(prepn. of, from ERL 4289, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

IT **31322-91-5**
RL: **CAT (Catalyst use)**; USES (Uses)
(catalysts, for polymn. of **epoxy** compds.)

RN 31322-91-5 HCPLUS

CN Methane, bis[(trifluoromethyl)sulfonyl]-, ion(1-), samarium(3+) (8CI) (CA INDEX NAME)

1/3 Sm(III) ³⁺

IT 25068-38-6P 31244-44-7P

RL: PREP (Preparation)

(prepn. of, bis[(trifluoromethyl)sulfonyl] compds. as catalysts for)

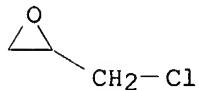
RN 25068-38-6 HCPLUS

CN Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 106-89-8

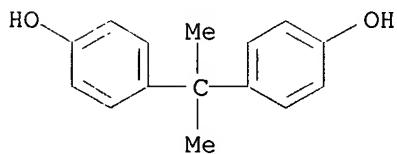
CMF C3 H5 Cl O



CM 2

CRN 80-05-7

CMF C15 H16 O2



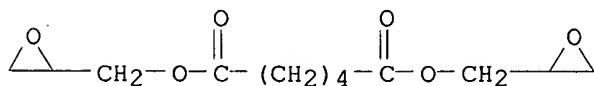
RN 31244-44-7 HCPLUS

CN Hexanedioic acid, bis(oxiranylmethyl) ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 2754-17-8

CMF C12 H18 O6



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